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ABSTRACT

This manual is designed to teach nutrition concepts to young children. The information is centered around three principles: (1) nutrients are inside foods; (2) nutrients perform specific functions in the body; and (3) behavior modification is effective in strengthening individual and family eating patterns. At the beginning of each unit, an outline of the principles and objectives is provided followed by the basic nutrition information needed for teaching the curriculum. A listing and explanation of each activity experience suggested for use with the unit includes instructional guides and patterns. "Nutri-letters" for the parents are provided to link the child's nutrition experiences at school with the family. (JD)

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Show-Me Healthy Habits

A Nutrition Education Curriculum for Early Childhood

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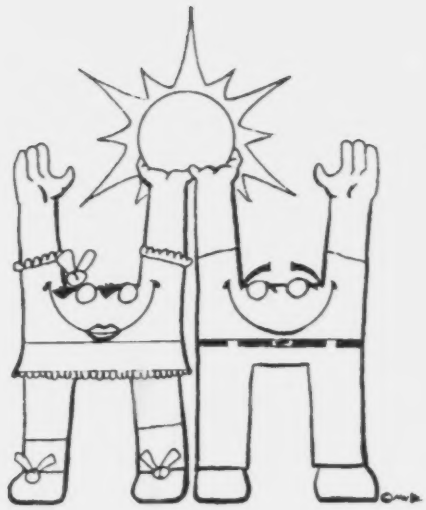
Show-Me Healthy Habits

A Nutrition Education Curriculum for Early Childhood



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Acknowledgements 2

Introduction 3

Preparing to Teach Show Me Healthy Habits 5

Knowledge and Attitude Survey 7

Age Group Characteristics 13

Food Handling Skills 15

Evaluating Dietary Intake 17

Healthy Habits Activity Plans

Nutrition for Early Childhood 19

Calcium 37

Iron 51

Vitamin A 61

Vitamin C 71

Protein 81

B-Vitamins 91

Appendices

Educational Resources 107

Nutri-Letter Evaluation Form 111

Simulated Meal-Time 113

Twin Visuals

Order Blank

2 Acknowledgements

The Missouri Nutrition Education and Training (NET) Program is indebted to the many people whose materials and ideas contributed to this new revised edition of **Show-Me Healthy Habits**.

The original work was the product of University Extension Area Food and Nutrition Specialists and Human Development Specialists cooperating with local University Extension Councils of Northwest Missouri ideas from other Nutrition Education and Training Programs were adapted as well as material from **ABC's of Nutrition**, Kansas State University and **Connecticut Nutrition Curriculum Grades 1-6**, Connecticut NET Program.

A special appreciation is extended to Karma Overmiller Metzgar, Food and Nutrition Specialist, whose ideas and leadership developed the program.

Printing and dissemination of **Show-Me Healthy Habits** was supported by NET funding.

Show-Me Healthy Habits: A Nutrition Education Curriculum for Early Childhood was developed by University Extension Area Food and Nutrition Specialists and Human Development Specialists in cooperation with the Nutrition Education and Training Program (NET), Missouri Department of Health, Jefferson City, Missouri.

In addition to introducing concepts of nutrition and complementing activities in the child care or classroom setting, another aspect of the curriculum is for the nutrition learning experience to become a family affair.

The children participating in the program can take home a **Nutri-Letter** upon completing each of the seven nutrition units. Parents are encouraged to participate with their child in the coloring of pictures, doing the activities, conducting experiments, and playing games that re-emphasize the information taught in the child care or classroom setting.

The information to be taught is centered around three principles.

- ✔ Nutrients are inside foods.
- ✔ Nutrients perform specific functions in the body.
- ✔ Behavior modification is effective in strengthening individual and family eating patterns.

Show-Me Healthy Habits is designed to teach nutrition concepts to children. The *Twins* are a visual means of teaching children the functions of certain selected nutrients inside food. As the functions of these nutrients are explained by the *Twins* they also change in character. For example: calcium produces sparkling teeth, protein helps build strong muscles to lift barbells, vitamin C helps heal wounds, and B vitamins are the key to releasing energy.

To evaluate the effectiveness of the curriculum, evaluation tools are developed for each audience involved: children, parents and staff. To evaluate the direct effect of the curriculum, computer analyzed dietary recalls could be conducted. Parent and child care provider evaluations are designed to evaluate the curriculum format and concepts.

The curriculum was piloted with 532 four and five year olds in 18 child care facilities within a nine county region in Northwest Missouri. The facilities included public and private day care centers, hospital operated child care programs, nursery schools, family day care homes, and Head Start centers.

Teachers have commented that *the curriculum was planned very well for use with preschoolers.* Another said, *I like being able to go to one place and get information needed (nutrition). The teacher's enthusiasm definitely influences the child.*

A parent responded, *my husband and I thought the information was well presented at school and in the Nutri-Letters. We know Jeff understood the information as he would tell us at supper how certain foods made his teeth strong, helped his eyes, made his muscles strong, helped him grow, etc.*

IMPORTANT

Show-Me Healthy Habits was designed for total involvement of the children, staff, and parents. As you plan to present the material involve aides, food service staff, parents, and the children.

You need not be a nutritionist to teach **Show-Me Healthy Habits.** The necessary nutrition information is included in the curriculum and is self-instructional. The initial step is for all staff involved to take the *Knowledge and Attitude Survey* following the instructions on the survey. Next review the materials which make up the curriculum.

Show-Me Healthy Habits includes the following units:

- Nutrition for Early Childhood
- Calcium
- Iron
- Vitamin A
- Vitamin C
- Protein
- B Vitamins

Unit Outline:

Activity Plan:
An outline of the principles and objectives for each unit.

Content:
Following the principles and objectives set forth in the *Activity Plan*, basic nutrition information needed for teaching the curriculum is outlined.

Activities:
A listing and explanation of each activity experience suggested for use with the unit. Instructional guides and patterns are included.

Nutri-Letters
These letters are the link between the nutrition experiences in the child care, preschool or early childhood facility and the family. The activities included should be completed at home to reinforce material presented at the child care center.

Upon thoroughly reviewing each unit retake the ***Knowledge and Attitude Survey****.*

ADDITIONAL MATERIAL AND SUGGESTIONS

(See Appendices)

- ***Healthy Habits Twins* Visuals:**

  Black and white masters are included for creating stick puppets or flannel board figures which are essential visual aids in teaching **Healthy Habits.**

  Teachers and helpers can wear butcher aprons with the *Healthy Habits Twins* on the bib. This is a visual clue to the children that it is **Healthy Habits** time. The *Twins* can be traced onto fabric, then outlined with fabric ink or embroidered. Quantities can often be done by sport shops with silk screening techniques. There could be interest in t-shirts, bags, aprons, etc. for the children. Stickers also can be a versatile visual and copied onto labels.

- **Reference Listing:**

  Many free or low-cost resources are available to help integrate and/or expand nutrition education into the child care setting.

- **Evaluation:**

  Child care providers can evaluate the content and format of the curriculum in two ways:

  1. Parent evaluation and instructions are included to provide feedback on their perception of the curriculum by use of **Nutri-Letters**.

  2. Child care providers can evaluate the effectiveness by using the **Simulated Meal-Time** evaluation tool before and after the curriculum is taught.

KNOWLEDGE AND ATTITUDE SURVEY
(For Self-Instruction)

Answer the following questions by putting an X in the space before the response which best describes your answer or attitude. Complete the left hand column before reviewing the material. Then review the material in the curriculum. Complete the right hand column. Check your answers. Review any of those you missed.

Before Reviewing Material		***After Reviewing*** Material
1.	A nutrient is	1.
___	a. substance obtained from food	___ a.
___	b. needed in the body to promote growth, maintenance and repair	___ b.
___	c. a and b	___ c.
___	d. undecided	___ d.
2.	The six major classes of nutrients are:	2.
___	a. vitamin B, sugar, protein, cholesterol, calcium and hydrogen	___ a.
___	b. vitamins, minerals, carbohydrate, protein, fat and water	___ b.
___	c. B-complex, sucrose, minerals, protein, fat and oxygen	___ c.
___	d. undecided	___ d.
3.	The ideal source of energy for most body function is	3.
___	a. carbohydrate	___ a.
___	b. protein	___ b.
___	c. vitamins	___ c.
___	d. undecided	___ d.
4.	The form of carbohydrate which cannot be digested is	4.
___	a. sugars	___ a.
___	b. starches	___ b.
___	c. fiber	___ c.
___	d. undecided	___ d.
5.	The one major contribution of sweetening agents is	5.
___	a. protein	___ a.
___	b. B-vitamins	___ b.
___	c. calories	___ c.
___	d. undecided	___ d.
6.	Cellulose or fiber, which promotes normal bowel movements, is found in	6.
___	a. fruits and vegetables	___ a.
___	b. refined cereals and baked products	___ b.
___	c. sweetening agents	___ c.
___	d. undecided	___ d.
7.	Starches are found in	7.
___	a. vegetable oil and butter	___ a.
___	b. meats and vegetables	___ b.
___	c. vegetables and cereal products	___ c.
___	d. undecided	___ d.

8. Fat is a nutrient that
___ a. can be totally eliminated from the diet
___ b. provides the most concentrated form of energy
___ c. carries water-soluble vitamins in food
___ d. undecided

8.
___ a.
___ b.
___ c.
___ d.

9. Diets containing too much fat are associated with
___ a. obesity
___ b. coronary heart disease
___ c. a and b
___ d. undecided

9.
___ a.
___ b.
___ c.
___ d.

10. Basic sources of fat in the diet include
___ a. mayonnaise, nuts, chocolate
___ b. apples, oranges, strawberries
___ c. carrots, potatoes, spinach
___ d. undecided

10.
___ a.
___ b.
___ c.
___ d.

11. Cells use amino acids to build body protein when
___ a. all non-essential amino acids are present
___ b. all essential amino acids are present
___ c. all essential and non-essential amino acids are present
___ d. undecided

11.
___ a.
___ b.
___ c.
___ d.

12. Vegetarians obtain protein by carefully combining
___ a. legumes, grains, seeds, and nuts
___ b. complete protein food sources
___ c. incomplete protein sources
___ d. undecided

12.
___ a.
___ b.
___ c.
___ d.

13. Eggs, meat, and dairy products are
___ a. complete proteins which contain all of the essential amino acids
___ b. incomplete proteins which contain all of the essential amino acids
___ c. incomplete proteins which come from animal sources
___ d. undecided

13.
___ a.
___ b.
___ c.
___ d.

14. The most important role of protein in the body is to
___ a. provide energy
___ b. provide amino acids for growth and repair of cells
___ c. provide vitamins for growth and repair of cells
___ d. undecided

14.
___ a.
___ b.
___ c.
___ d.

15. A nutrient dense food supplies a high ratio of nutrients to calories. Which of the following foods is the most nutrient dense?
___ a. whole milk
___ b. skim milk
___ c. potato chips
___ d. undecided

15.
___ a.
___ b.
___ c.
___ d.

16. When calcium intake is low over a long period of time, calcium is reabsorbed from the bone. This occurs because calcium is necessary for
___ a. proper blood clotting
___ b. proper muscle relaxation
___ c. all of the above
___ d. undecided

16.
___ a.
___ b.
___ c.
___ d.

17. Milk products are the best sources of calcium. Suppose you are allergic to milk; which of the following groups of foods would offer the best alternative?
___ a. white bread, pork chop, grapes
___ b. cantaloupe, oranges, oysters
___ c. salmon, sardines, mustard greens
___ d. undecided

17.
___ a.
___ b.
___ c.
___ d.

18. What is a serving size of food for fruits and vegetables for preschool children?
___ a. 1/4 cup
___ b. 1/2 cup
___ c. 1 tablespoon per year of age
___ d. undecided

18.
___ a.
___ b.
___ c.
___ d.

19. Liver is the best source of dietary iron. What is another good source of iron?
___ a. milk
___ b. oranges
___ c. raisins
___ d. undecided

19.
___ a.
___ b.
___ c.
___ d.

20. The nutrient that helps regulate body temperature is often not considered a nutrient. Which of the following is the forgotten nutrient?
___ a. fiber
___ b. water
___ c. protein
___ d. undecided

20.
___ a.
___ b.
___ c.
___ d.

21. Vitamins are nutrients in food that
___ a. are all stored in the body
___ b. are found only in the fat part of food
___ c. regulate body processes and help release energy
___ d. undecided

21.
___ a.
___ b.
___ c.
___ d.

22. Carotene, found in green and yellow vegetables and fruits, is changed in the body to
___ a. vitamin C
___ b. vitamin A
___ c. a and b
___ d. undecided

22.
___ a.
___ b.
___ c.
___ d.

23. B-complex vitamins release energy from
___ a. fat, vitamins, and minerals
___ b. vitamins, fat, and carbohydrate
___ c. protein, carbohydrate, and fat
___ d. undecided

23.
___ a.
___ b.
___ c.
___ d.

24. Vitamin C found in fruits and vegetables is necessary for
___ a. the absorption of iodine
___ b. the healing of cuts and other wounds
___ c. formation of carotene
___ d. undecided

24.
___ a.
___ b.
___ c.
___ d.

25. Vitamin A is necessary for
___ a. growth and reproduction
___ b. energy
___ c. vision in bright light
___ d. undecided

25.
___ a.
___ b.
___ c.
___ d.

26. The nutrient amounts specified in the RDA's usually meet the needs of
___ a. everyone
___ b. all healthy people
___ c. children only
___ d. undecided

26.
___ a.
___ b.
___ c.
___ d.

Circle the letter which best corresponds to how you feel about the statement.
A if you agree with the statement
U if you are undecided or neither agree or disagree with the statement
D if you disagree with the statement

A U D 1. Since preschool children (3-5 years) normally grow very slowly during this period, they do not need large amounts of food. A U D 1.

A U D 2. A child should not be allowed to leave the table until he/she has completely cleaned his/her plate. A U D 2.

A U D 3. Preschool children usually have a hard time cutting meat, so it is best to serve it in bite-size pieces. A U D 3.

A U D 4. When introducing a new food, adults should suggest that children take at least a taste. A U D 4.

A U D 5. It is a good idea to allow at least two hours between snacks and meals. A U D 5.

A U D 6. Child care facilities should take the responsibility for teaching food nutrition practices. A U D 6.

A U D 7. Child care personnel can help change children's food habits by setting a good example in their attitude toward "new" foods. A U D 7.

A U D 8. Servings need to be large enough to satisfy the child's appetite because the preschooler might be too shy to ask for seconds. A U D 8.

A U D 9. Protein rich foods provide liberal amounts of nutrients for growth of small children. A U D 9.

A U D 10. A child care facility should include experiences with food in the children's schedule, other than just eating meals and snacks. A U D 10.

A U D 11. The facility's menu should include one good source of vitamin C each day. A U D 11.

A U D 12.	Teaching children to enjoy a wide variety of foods may be the best type of nutrition education.	A U D 12.
A U D 13.	It takes too much supervision to let the children help set the table for snacks and meals.	A U D 13.
A U D 14.	A child may be more interested in eating if activities before the meal are quiet and "non-physical."	A U D 14.
A U D 15.	An excess of certain nutrients can be harmful to the body.	A U D 15.
A U D 16.	Because children are fussy about what they eat, it is good to let them choose what they want for meals.	A U D 16.
A U D 17.	A sound nutritional practice is to eat a wide variety of different foods each day.	A U D 17.
A U D 18.	Child care facility menus should be planned to include cultural foods that are familiar to the children.	A U D 18.
A U D 19.	Carbohydrate rich foods, such as bread, rice and potatoes, provide few nutrients.	A U D 19.
A U D 20.	Children generally like foods which can be eaten with their fingers.	A U D 20.
A U D 21.	A good way to encourage eating is to allow children to serve themselves.	A U D 21.
A U D 22.	Healthy, active children require some concentrated sweets, such as candy for energy needs.	A U D 22.
A U D 23.	Skim milk contains approximately the same amount of protein as whole milk.	A U D 23.
A U D 24.	Children will work and play better if they have eaten an adequate breakfast.	A U D 24.
A U D 25.	When teachers eat with the children, they should eat the same foods.	A U D 25.
A U D 26.	A chubby child is sure to be a well-nourished child.	A U D 26.
A U D 27.	Children's food habits are established entirely in their home.	A U D 27.
A U D 28.	Natural or unprocessed foods are more nutritious than processed foods.	A U D 28.
A U D 29.	Foods from health food stores are usually more expensive than from grocery stores.	A U D 29.

Key for Knowledge and Attitude Survey for Child Care Provider Self-Instruction

1. c a and b
2. b vitamins, minerals, carbohydrate, protein, fat and water
3. a carbohydrate
4. c fiber
5. c calories
6. a fruits and vegetables
7. c vegetables and cereal products
8. b provides the most concentrated form of energy
9. c a and b
10. a mayonnaise, nuts, chocolate
11. b all essential amino acids are present
12. a legumes, grains, seeds, and nuts
13. a complete proteins which contain all of the essential amino acids
14. b provide amino acids for growth and repair of cells
15. b skim milk
16. c all of the above
17. c salmon, sardines, mustard greens
18. c 1 tablespoon per year of age
19. c raisins
20. b water
21. c regulate body processes and help release energy
22. b vitamin A
23. c protein, carbohydrate, and fat
24. b the healing of cuts and other wounds
25. a growth and reproduction
26. b all healthy people

1. A	11. A	21. A
2. D	12. A	22. D
3. A	13. D	23. A
4. A	14. A	24. A
5. A	15. A	25. A
6. A	16. A	26. D
7. A	17. A	27. D
8. A	18. A	28. D
9. A	19. D	29. A
10. A	20. A	

How well did you score?

Total your correct answers.

50-55 You're ready to teach **Show-Me Healthy Habits**.

45-49 You're almost ready, review those statements you missed.

44 or below Review the units again and retake survey. When in the teaching role nutrition accuracy is important.

Understanding the Four and Five Year Old

Kindergarten students are just beginning to assert their independence but their major center of interest is still in the home. While they desire to imitate adults or older children they still have a great love for fairy tales and other fantasies. They are just beginning to learn about the world through situations with which they are familiar. Children in this age group work best in small groups of three or four with activities that do not require reading or writing.

When preparing nutrition education activities for this age group, you should consider these generalizations:

- They can set table, handle dishes and utensils safely.
- They like to keep and enjoy eating own "cooking" projects.
- They understand nonverbal communications such as a smile, frown, tone of voice, affectionate pat, and respond to them.
- They have had a variety of experiences, seen people use books and paper, watched television, been taught by older brothers and/or sisters, etc.
- They learn best through personal experiences. They need to touch, look, taste, see, hear, test and to try out in order to begin to make their choices based on their senses of what feels, looks, smells good to them.
- They are eager to learn and please adults and have adults show concern for them.
- They enjoy telling, drawing and painting stories, and like to look at pictures and explain what the pictures are all about.
- They recognize simple symbols such as stop signs and poison symbols, but need time to learn new words.
- They are inquisitive and curious. They want to know how things work and where they come from.
- Most children in this age group are not ready to learn through sitting and listening, nor through activities that require pencil and paper, but learn better in small groups of three or four children.

Understanding the Six, Seven and Eight Year Olds

Children in the first, second and third grades are anxious to assume responsibility and are changing emotionally and socially. They are often cooperative in group activities, enjoy secret societies, rituals, and clubs where they will abide by group decisions. Children in this age group work well in the classroom groups.

When preparing nutrition education activities for this age group, you should consider these generalizations:

- They are exercising independence and becoming more self-assertive yet, are being increasingly influenced by their peer group.
- They want and need much adult encouragement and approval.
- They want to know about children living in other places and how their lives are similar and different.
- They like to look at maps and study pictures of other places.
- They all need many opportunities to touch, feel, handle, experiment, and explore.
- Learning to read and write must be a positive experience for these children.
- They enjoy games involving rhyming words, like and different sounds, picture matching and letter matching, and have visual discrimination.
- They come up with quite creative solutions to problems that, while they seem simplistic, unrealistic and impractical to us, may make sense in their realm of experience.
- They look to answer why and how questions. They are beginning to observe, compare, contrast, and evaluate.
- They enjoy learning about families of different places, the working of their school, community, climate, and technology.
- They are beginning to take more responsibility for personal safety, eating habits, dental health, and cleanliness habits.
- They are beginning to understand the causes and effect of the choices they make.

and to move their top hand in a circular motion. After learning this step, moving both hands in a circular motion is easy.

Juicing: Juicing citrus fruits requires the child to learn two motions — pushing down and turning.

Cracking raw eggs: Have something firm for tapping against and a small bowl to hold *each* egg. Clean fingers can remove shell fragments from the bowl. Use a simple recipe (e.g., muffins) that call for use of a whole egg and not for separate whites and yolks.

Mashing: Mash bananas, cooked fruits (e.g., applesauce, pumpkin) and vegetables (e.g., potatoes), or cooked/canned dried beans.

Fine Coordination — Resistance, Sharpness (5-year-olds)

Careful eye-hand coordination and well defined safety procedures are needed for fine motor coordination.

Measuring: Have ingredients in small bowls for children to learn to fill and level measuring spoons. Have children measure ingredients over a plate or wax paper to avoid spills in the food mixture. Spills on the table or counter can be wiped up by the child. Measuring helps children learn food classifications such as fat and cereal/grains and ingredients in mixtures.

Cutting: Use dull table knives and semi-soft foods such as cheese wedges, hard cooked eggs, or bananas. The food is held on the cutting surface with one hand so that fingers are not under the blade. The index finger should be over the top of the knife blade and a sawing motion used. Review safety procedures for handling and storing knives and sharp kitchen utensils.

Figure 5. FIVE YEAR OLDS develop fine motor coordination using a kitchen knife for cutting.

Grinding: A food grinder turned by hand can be used to grind chunky peanut butter, raw or cooked meat (e.g., hamburger, ham spread), or fruits (e.g., cranberry — orange mixtures). Hand-cranking ice cream is another experience.

Grating: Use a square, upright grater or one that fits securely to the top of a container. Show the child how to hold the fingers back far enough on the food so fingers do not get cut. Grate carrots or cabbage for salads, pumpkin for custard or bread, or cheese for spreads.

Figure 6. FIVE YEAR OLDS develop fine motor coordination using a mechanical egg beater.

Beating with an egg beater: Coordinating the placement of one hand on the handle and one hand on the turner are skills to develop. Never give a preschooler an electric mixer because of danger of accidents with the moving parts.

References:

1 Cooper, K.A. and C.E. Go. Analysis of nutrition curriculum guides at the k-12 level, *Journal Nutrition Education* 8:62–66, 1976.

2 Ferreira, N.J. *The Mother-Child Cookbook*, 73 pp., 1969, Pacific Coast Publishers, Menlo Park, CA 94025.

3 Hertzler, A.A. *Preschoolers' Food Handling Skills — Motor Development*, Virginia Cooperative Extension Publication 348-011, VPI&SU, Blacksburg, Virginia, 1984.

PRESCHOOL FOOD HANDLING SKILLS

Manipulative Skill		Food Safety	Kitchen Safety	Vocabulary	Math	Cultural Food Ways	Social Skills	Food & Nutrition Meanings
2 YEARS big arm muscles	scrubbing tearing breaking snapping dipping							
3 YEARS medium hand muscles	wrapping pouring mixing shaking spreading cracking nuts							
4 YEARS small finger muscles	peeling rolling juicing cracking *EEI mashing							
5 YEARS fine coordination	measuring cutting grinding grating mechanical *EEI beater							

Preschoolers' Food Handling Skills — Motor Development

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Although many curriculum guides and recipe books contain food activities for young children, few report on the development of related manipulative/psychomotor skills (1–3). The following suggestions were developed to teach caregivers (e.g., parents, teachers) ways to involve preschoolers in food preparation activities.

Food handling skills need to be tailored to the level of muscular development of the preschooler. Food handling teaches preschoolers lifetime skills on taking responsibility, figuring things out, making decisions, and getting along with others (talking, listening, taking turns). At the same time preschoolers are learning vocabulary about food and nutrition, and gaining valuable skills in making food choices and in learning to prepare meals.

Three basic rules are: 1. Plan experiences at the child's level of development. 2. Plan food experiences as a part of the total day's food plan of meals and snacks, avoiding rich desserts and sweet snacks, and 3. Keep adult participation in the activities at a minimum. Adults should be prepared to give positive directions, to provide hints on how to get the job done, and to handle hot, heavy, or sharp objects.

Big Muscles — Arm (2-year-olds)

The two year old can learn food tasks using big arm muscles.

Scrubbing. Using the arms to clean carrots or potatoes with brushes, to scrub table tops with sponges, or to wash dishes helps the child learn sanitation skills. Give the preschooler easy jobs and nonbreakable objects to use. Give positive hints such as "Are there water spots or crumbs on the table? Do you have to stand on different sides to check because of the light?" At this level, motions are not as important as getting the job done. Plastic aprons or dry clothes are helpful for the real enthusiastic scrubbers, scrubbing skills also prepare the child to wipe up spills and splashes, as long as no glass is broken. A child-size mop is useful for easy floor-spill cleanups.

Figure 1. TWO YEAR OLDS use arm muscles to wipe tables/counter tops, wash dishes, or scrub vegetables.

Tear-Break-Snap: Tearing lettuce and greens for salad, breaking cauliflower or carrots for snacking, or snapping green beans for cooking help children discover colors, flavors, sounds, textures and shapes, to compare big and small sizes, and to learn vocabulary. Start by giving the child portions that can be handled easily for breaking.

Dipping: Dip fresh fruits and vegetables from the above activity into cheese spread, yogurt, peanut butter or other dips.

Medium Muscles — Hand (3-year-olds)

The three year old can learn food tasks which use hand muscles.

Wrapping: First efforts in wrapping aluminum foil around apples, corn or potatoes usually result in scrunching, with lots of wrinkles and part of the food left uncovered. A hint is to bring the corners of the foil together before scrunching. Wrapping skills are also used to wrap dough around meat or vegetable fillings to make many cultural dishes.

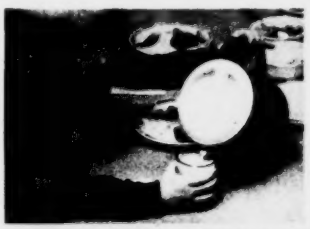


Figure 2. THREE YEAR OLDS use hand muscles for pouring beverages.

Pouring: Pouring water at the sink or sand in the sandbox provides experience for pouring beverages at the table. Give the child a small pitcher such as a liquid measuring cup. Instruct the child to hold the pitcher with one hand and to put the other hand near the spout to guide the flow of liquid into the glass. Initial efforts to stop pouring when the glass is full are usually too late. Mark the glass with a rubber band or waxed pencil to show children when to stop pouring so that the glass does not overflow. Let the child be responsible for cleaning up spills, using skills learned in the second year, as long as there is no broken glass.

Mixing: First mixing efforts might be made using clean hands and a container twice the size of the amount of mixture. The child can sense the texture and feel of a cereal snack mix or muffin batter. Wooden spoons can be introduced with easy-to-mix batters such as quick breads. Place a damp cloth under the bowl to prevent slipping, or employ the use of another child or adult to help hold the bowl.

Shaking: Use a small baby food jar to shake whipping cream to make butter and skim milk, to combine milk and orange juice to make a drink, or to tint coconut with food coloring. Have the child place one hand under the jar and the other on top. Show how to push the jar up from the bottom with one hand and down from the top with the other.

Figure 3. THREE YEAR OLDS use hand muscles for mixing fruit salads, applesauce, or quick bread batters.

Spreading: Use dull table knives or small spatulas to spread bread, vegetables (e.g., celery), or fruit (e.g., apples) with butter/margarine, jam/jelly, peanut butter, or with spreads of cheese, egg salad or beans. To prevent the child from bending down on the wrist with all fingers clenched tightly around the handle, show the child how to place the thumb and index finger to guide the knife. Talk about handling spreading tools safely to prevent accidents.

Cracking Nuts: Cracking nuts are a rainy day activity to work off extra energy. Talk about using OK surfaces such as a concrete floor or a hard board, so that children do not ruin good floors. Provide child-size hammers and tell the child to keep *two* hands on the handle.

Small muscles — fingers (4-year-olds)

Previous food skills learned prepare the child for developing technical skills using fingers.

Peeling: First experience of shucking corn, shelling shrimp, peeling hard cooked eggs or oranges may end up looking funny and take longer than adults might like. But with practice, the children will be experts.

Figure 4. FOUR YEAR OLDS use finger muscles to peel bananas, oranges, shrimp or eggs.

Rolling: Children first want to flatten food between their hands or on the table, in order to roll a round ball of ground meat, grated cheese, or dough. Show children how to hold a small portion of the mixture on one hand

Food alone cannot make you healthy, but good eating habits based on moderation and variety can help keep you healthy and may improve your health.

Evaluating the dietary intake of a person can be a true reflection of the effectiveness of a nutrition education program. The results can demonstrate that the information has been applied.

Food recalls or diet records can be used to obtain food records for an individual. By collecting diet information before the curriculum is taught and then following the completion, the changes made can be measured.

Food recalls or diet records usually cover at least 24-hours. A person's dietary intake may not be judged adequate or inadequate based on an evaluation of one 24-hour period; however, it can help in making decisions on how to modify a particular diet and determine areas of emphasis.

The pilot project of this curriculum used computer assisted analysis on 24-hour food records for preschoolers. Because **Show-Me Healthy Habits** emphasizes *nutrients* instead of *food groups*, changes in intake can be measured.

It is a concensus by those in the nutrition and health field that an intake of a variety of foods from all the food groups provides a modest amount of the necessary nutrients.

FOOD GUIDE
Recommendations

Age 3-6	Milk	Meat	Vegetable Fruit	Bread and Cereal
Servings	2 - 3	2	4	3 - 5
Amount	6 oz. each or equivalent	1 1/2 oz. each*	1/4 to 1/2 cup each*	3 slices or equivalent**

* Or 1 Tablespoon per year of age.

** Equivalent foods can be substituted such as: 1 oz. cheese or 1/2 cup of yogurt for a serving of milk; cereal for bread - 1/2 c. uncooked cereal or 1 c. ready-to-eat cereal equals one slice of bread.

Special attention should be given to food sources of iron: liver, eggs, meat, legumes, dried fruit, dark green leafy vegetables, enriched or whole grain bread, and cereals for young children.

DAILY FOOD GUIDE SCOREBOARD

INSTRUCTIONS

- Each square represents the minimum number of the recommended servings.
- The darker squares represent optional additional servings recommended in the FOOD GUIDE.
- If more servings from a food group are eaten than the range recommends in the FOOD GUIDE they would be *extra* servings and are not scored on the scoreboard.
- Extra servings are acceptable as long as the other food groups are not neglected and calories can be allowed.

Scoring the Daily Intake: For each food eaten which belongs to a food group, simply mark the appropriate square or portion of a square (one square represents one serving). In the Fruits and Vegetables section, write V on the square which represents a vegetable serving. A perfect score would show all squares marked and at least two V servings in the Fruits and Vegetables section.

CHILDREN UP TO 11 YEARS	SCOREBOARD
Milk and Milk Products - 2 to 3 servings	
Bread and Cereals - 3 to 5 servings	
Fruits and Vegetables - 4 to 5 servings	
Meat and Alternatives - 2 servings	

BEFORE

DATE

Milk and Milk Products - 2 to 3 servings	
Bread and Cereals - 3 to 5 servings	
Fruits and Vegetables - 4 to 5 servings	
Meat and Alternatives - 2 servings	

AFTER

DATE

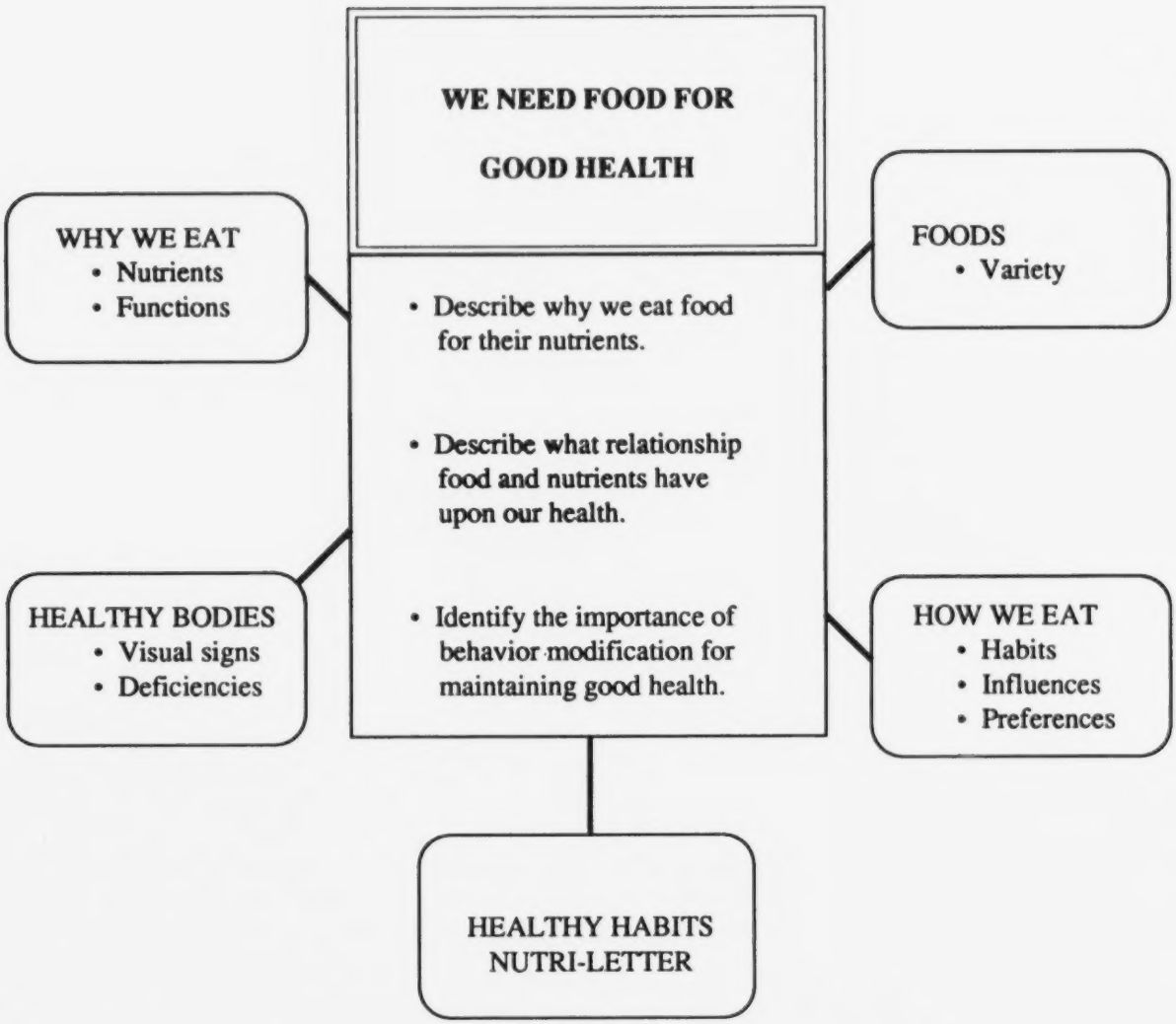
- Compare the scores obtained for the *Before* and *After* diets.
- **Before comments:**

  This child needs to:
- **After comments:**

  This child has:

Healthy Habits Activity Plan

Nutrition for Early Childhood



CONTENT . . . NUTRITION FOR EARLY CHILDHOOD

WHY WE EAT

Nutrients inside the foods we eat are needed for:

- Growth and development.
- Protection of the body by building resistance to infection and/or germs.
- Providing energy for playing, working, and learning.

HEALTHY BODIES

There is a direct relationship between diet and personal health. Nutrients in foods perform specific functions within the body which provides signs of good health. Characteristics of good health evident in children are:

- Alert expression
- Clear bright eyes
- Stamina and endurance
- Healthy teeth and gums
- Resistance to infection and
- Clear smooth complexion.

Common nutritional deficiencies in both children and adults are:

- Deficient iron resulting in anemia.
- Lack of vitamins A, C, and calcium.
- Insufficient food fiber and water resulting in constipation and/or irregularity.
- Poor balance of calories and activities which may be a cause of overweight or underweight.
- Too much sugar intake and poor hygiene habits causing dental decay.

FOODS

A variety of food in appropriate amounts is needed for the necessary nutrients our bodies require. Remember the following in selecting a variety of food.

- Color
- Texture
- Shape and size
- Temperature
- Preparation methods and
- Flavor.

HOW WE EAT

- Food habits are among the most important things a child learns and can have a lifelong effect on health.

- Parents and others who provide for a child are the most important influence on what a child learns to eat as preferences for foods are established early in life.

- Children eat better if they are in a relaxed atmosphere.

- Children are strongly influenced by what they see and hear by way of advertising, peers, parents, and day care providers.

- Children's environment with relation to smell, the clock, television, and food availability will influence eating habits.

> The parent's responsibility is WHAT is presented to eat and the manner in which it is presented. The child determines HOW MUCH and even WHETHER they eat it.
>
> Adapted from: How To Get Your Kid To Eat...But Not Too Much, Ellyn Satter

Department of Health Resource:

A Child in Your Life Series

- Time to Eat
- Help Me Make It Through The Day
- Come Play With Me
- My How You've Grown
- Why Won't You Behave

Copies available at no cost from:
Missouri Department of Health
P.O. Box 570
Jefferson City, MO 65101

Extension Resource Publications:

GH 1056 - Nutrition Concepts - Definitions: A Guide to Good Understanding
GH 1825 - Nutrifacts About Nutrient Teamwork
GH 1826 - Nutrifacts: Teamwork is the Key
GH 1431 - If You Don't Like It Neither Do I
GH 1432 - The Advertising Game
GH 1433 - Children's Nutritional Status: Are the Kids Alright?
GH 1434 - Snack Time for Kids

Single copies available at no cost from:
Extension Publications
University of Missouri
222 S. 5th Street
Columbia, Missouri 65211
or
Local County Extension Office

WHY WE EAT

Healthy Habit Twins

Using the pattern provided, make either a stick puppet or flannel board figure that depicts the *Twins*. These characters will be used throughout every unit in the curriculum, and it is important that the children become acquainted with them and see them as setting examples of nutritional health. Use the *Twins* to introduce this unit of study on nutrition. They can carry on a conversation between themselves:

Both Twins: Hi, boys and girls! How are you today? We're the **Healthy Habit Twins**, and we want to be your friends. We're going to be learning some wonderful things together about how food keeps us healthy.

Girl Twin: Boys and girls, do you know what you need so that you can run and play? (pause and let children respond) You need *food*!

Boy Twin: Why do we need food, boys and girls? (pause and let children respond) Food gives us *energy*, and it helps our bodies grow and stay healthy.

Girl Twin: If we eat good, nutritious foods, we'll feel healthy and happy.

Boy Twin: What is a *nutritious* food?

Girl Twin: Well, I'll try to tell you what a *nutrient* is. A nutrient is something inside food, but we can't see it. Nutrients are the things that make the food healthy for us and help our bodies stay strong and full of energy.

Boy Twin: Can you tell me about some of the nutrients?

Girl Twin: Sure! Calcium is a nutrient that is inside foods like milk, cheese, yogurt and salmon; and it helps make our teeth and bones strong.

Iron is a nutrient that is inside foods like liver and raisins, and it helps us be active and healthy.

Vitamin A is a nutrient found in foods like carrots. Vitamin A helps give us good vision and smooth skin.

Vitamin C is a nutrient found in oranges, that protects our healthy bodies.

The B vitamins are nutrients found in foods like whole wheat bread. They unlock the energy in other nutrients.

And protein is a nutrient found in meats and nuts. Protein helps us build strong bodies.

Boy Twin: Gee, that's a lot to remember.

Girl Twin: I know, but that's going to be the *fun* part! We're going to help teach all these boys and girls about the nutrients and the foods they are found in.

Boy Twin: How are we going to do that?

Girl Twin: Well, we're going to help tell stories, sing new songs, play some games and do some fun activities together. And when we're done we'll know what nutritious foods to eat so our bodies will stay healthy. And our pictures are on a special letter that the boys and girls will get to take home and read with their parents.

Boy Twin: Wow! That sounds like lots of fun! I can hardly wait to get started.

Girl Twin: I'm excited about learning good food habits and health habits, too. But it's time to go for now.

Healthy Habit Twins Story

The *Twins* tell a story that explains the body's need for energy and go-power, based on the flannel board story, *The Little Things that Run Out of Gas*. Use the *Twins* as flannel board figures for this story. Also use the patterns for car, gas pump, apple and sandwich to visualize the story. (Included on next page.)

The Little Things That Run Out Of Gas

Both Twins: Hi, boys and girls! We want to tell you a story today about *The Little Things That Run Out Of Gas*..

(Place car on flannel board.) Here is a car. What color is it? This car has a job to do. It takes people places. It can go in the city and in the country. But if that car goes too long, something might happen.

Can you guess what? (pause for responses) It will run out of gasoline.

So what will the driver do? (pause for responses) It has to fill up with more gasoline so that it can go again. The gasoline gives this car go-power or energy.

Both Twins: Do you remember our names, boys and girls? (pause)

We're the **Healthy Habit Twins**, and we love to run and play all the time. We run in our yard and on the sidewalk. But just like the car, something happens if we play too hard and run too much. We'll run out of energy or go-power. What can we do to get more go-power? (pause for responses)

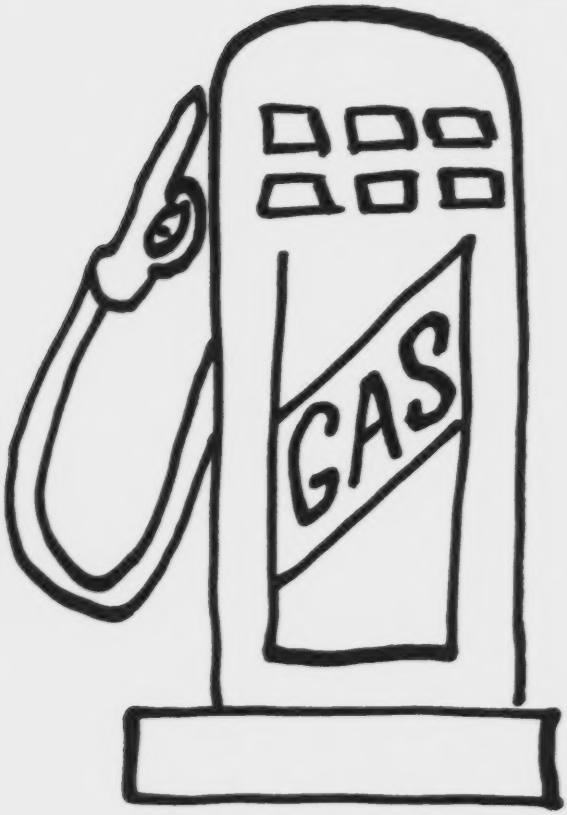
Both Twins: What can we do to get more go-power? (pause for responses) We can eat food to give us energy and go-power!

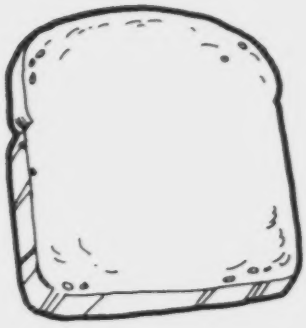
Girl Twin: I'll eat this apple and you can have the sandwich, Brother.

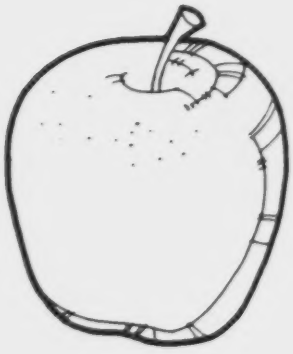
Boy Twin: Thank you. Let's chew up our food and get it into our bodies so we can go again.

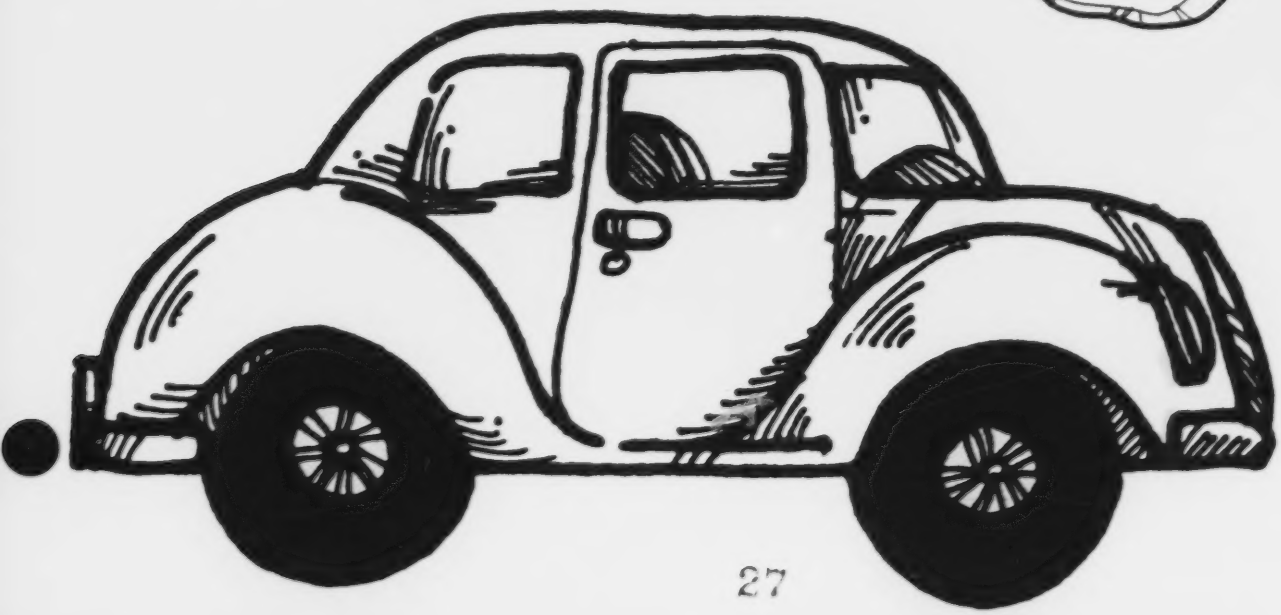
The Little Things that Run Out of Gas

Flannel Board Patterns









Girl Twin: We want to keep our bodies full of energy so we eat lots of good food. Can you boys and girls tell me a food that you like to eat that gives you go-power or energy? (pause for responses)

Both Twins: That's all for now. We'll be back again soon to tell you more about good food and good health. Bye-bye!

Feed the Puppet

The objective is for the children to feed the puppet nutritious foods. When a non-nutritious food is fed, puppet spits food out or acts tired and sad.

The puppet should be of soft material with a slit for the mouth. Food pieces can be of felt shapes or pictures from magazines, laminated.

Leave the puppet in an area where children can see routinely. A spider hangs nicely in a corner, a fish puppet can hang from the ceiling too. Or use a boy or girl puppet.

The purpose can change as you learn about the different nutrients.

HEALTHY BODIES

We Need Food for Growth

Taking part in this activity will help the children understand that food is needed for bodies to grow and be healthy.

Every child has the natural desire to *grow big* so this activity will appeal to the children. Do not make false promises to the children, such as, "If you eat good food you'll grow up big and tall." For a child with short parents, that could be very misleading. It is much better to say that eating the correct foods will help you grow to be as tall as you can be. Discuss how foods help us grow.

Materials needed: Height/Weight record cards
Butcher paper
Magazine cut-outs

- Weigh and measure the children. Record their measurements on a record card. These can be made from a 3" x 5" index card, or make your own.
- Trace each child's body on butcher paper and have them paste food pictures from magazines on it. Draw a dotted line around the profile after a month or so to show actual growth that has occurred.

Finger Play Activity

"My name is little _____ (point to self). See me grow so tall (reach high). I eat my food (pretend to eat) and sleep at night (rest head on hands) with not much help at all (boasting gesture)."

"I eat my food and run and play (pretend to eat and run in place). And drink some milk every day (pretend to drink)."

"Mom measured me by the wall (lift hand over head), I am growing big and tall (reach high)."

Food Gives Us Energy

An activity to help children learn a reason why we need food.

The *Twins* are used in this activity, so be sure you have them ready for use as either stick puppets or flannel board figures.

Materials needed: Food pictures - toast, orange, milk, oatmeal or other hot cereal.
(If available use the Dairy Council pictures or magazine pictures.)
Picture of small ball.

- Have children jump up and down, counting 1-10. (Teacher should participate with children).
- Have children jump up and down, clapping their hands simultaneously, counting 1-10.
- Have children sit down.

Teacher: Who can tell me what we just did?

Children: (They will probably say, We jumped up and down.)

Teacher: Yes, and what else did we just do?

Children: (They will probably say, We jumped up and down and clapped our hands.)

Teacher: Yes, and what else did we do? (If no more responses, teacher continues.) We used *energy*! (Have children repeat the word.)

Energy helps us to run and play. Energy comes from eating the right foods. Bodies that are full of energy are healthy bodies. Let's see what the **Healthy Habit Twins** have to tell us about healthy bodies.

Girl Twin: Hi, boys and girls! You know, it's such a nice day, I think I'll ask my brother if he'll play ball. (Put ball on flannel board.) Come on out, Brother!

Boy Twin: (Appears yawning) What d'ya want?

Girl Twin: Let's play ball.

Boy Twin: No, I'm too tired (still yawning).

Girl Twin: It's 10:00. Come on, let's go play.

Boy Twin: No, I just want to stay home and watch TV.

Girl Twin: Watch TV?

Boy Twin: Yeah, I'm just too tired to play ball.

Girl Twin: You're tired at 10:00 in the morning? Didn't you eat a good breakfast?

Boy Twin: I guess so.

Girl Twin: What did you eat?

Boy Twin: A couple of cookies.

Girl Twin: You call that breakfast? No wonder you're so tired. Look at me! I had a good breakfast. I have lots of energy and I'm ready to go out and play. I had an orange, toast, hot cereal and milk! (show pictures)

Boy Twin: Gee, that looks good!

Girl Twin: We're still growing and we need food to make our bodies healthy. Cookies are not a very good breakfast.

Boy Twin: Why not?

Girl Twin: A good breakfast gets you going in the morning. You need more than cookies.

Boy Twin: You mean that's why I'm so tired?

Girl Twin: That's right. I ate a good breakfast and I have lots of energy. (Boy Twin starts to leave.) Where are you going?

Boy Twin: I'm going to fix myself a good breakfast so I can grow up healthy and full of energy. After that we can play ball and have lots of fun.

Girl Twin: That sounds like a good idea.

Both Twins: Did all you boys and girls have a good breakfast today?

We'll be back soon with more stories about good food and good health. Goodbye!

FOODS

Hop Up to Good Health

This activity will help the children learn to identify a variety of nutritious foods and help them understand the difference between *anytime* snacks and *sometime* snacks. *Anytime* snacks can help us grow, make us strong, and may help us from getting sick. Poor snacks, on the other hand, make us full but may not help us grow. Some may even cause us dental problems.

Materials needed: Game cards
Chalk or tape lines marked on the floor to indicate *starting line* and the *Good Health Goal Line*.
Box to put game cards in

Make game cards on 3 x 5 cards using pictures of food from the list below. A number, 2 or 0, is to be marked on the back of each card indicating the nutritional value of the food. (See list.)

Food	*Points*
milk	2
apple	2
banana	2
cheese	2
leafy green vegetables	2
tomato	2
peanuts	2
carrot	2
orange juice	2
peas	2
soda pop	0
candy	0
chocolate cake	0
potato chips	0
sugar cookies	0

Explain to the children the game called *Hop Up To Good Health*. Show the children the game cards. Have them identify the food. For instance, carrots have 2 points, which means they are good for you. Soda pop has 0 points, which means it is a *sometime* food.

To play the game have four to six children at a time stand behind the marked *starting line*. Each child, one at a time, draws a food game card from the box. Each player identifies the food on their card, turning the card over, the number is read. If it is an *anytime* snack the card will have a number 2 on the back. This means the child may take two hops forward. If it is a *sometime* snack, the card will have a 0 on the back. This means the child may not take any hops.

The object of the game is to be the first to reach the *Good Health Line* (marked 30 feet away from the starting line) by hopping.

After the game is completed, ask these questions:

- What are some *anytime* food snacks?
- What do *anytime* snacks do for us?
- What are some *sometime* snacks?
- What do *sometime* snacks do for us?

Nutrient Fishing

Tape paper clips to the back of food models or pictures of food (use pictures that plainly represent the six nutrients we are discussing). Using a dowel or stick and string, make a simple fishing pole. Put a small magnet on the end of the strong. For a pond, use a pie pan, bowl or simulate a pond using a hoola-hoop on floor or tape circle.

Have children *fish* for a well balanced meal. The magnet will attract the paper clips. Allow enough turns so everyone can *catch* a balanced meal.

Discuss and identify the foods with the children and ask them if they know what nutrient is in that food.

Characteristics of Foods

This is a sensory activity that can be used to initiate discussion among the children regarding characteristics of food. Best results if used with small groups of 4-6 children at a time.

Use plastic margarine tubs or small bowls.

Hear It
eggs breaking
crumbling crackers
pouring water
beating eggs

Smell It
vinegar
vanilla
lemon juice
pepper or chili powder

Taste It
salt
sugar
soda
jelly
lard
butter

Feel It
dry beans
uncooked rice
dry cereal
flour
raisins or prunes
cornmeal

Yummies and Yuckies

Children sometimes fall into the habit of rejecting any new and unfamiliar food. We know that it is important to eat a wide variety of foods to be well-nourished, so it is important to break down this resistance to *new foods*.

This activity uses a *new food* (green eggs) to show that sometimes the unfamiliar can turn out to be very good. The delightful Dr. Seuss story ***Green Eggs and Ham***, is one that young children relate to.

Materials needed: Book, ***Green Eggs and Ham***
Eggs for scrambling with green food coloring
Ham bits for serving along with the green eggs
Plates and utensils

Read the story to the children.

Discuss with them how the story character felt about the new food before and after he tasted it.

Ask them to share stories about times when they have had the same feeling about new foods.

Prepare green scrambled eggs for tasting. Don't force them to eat, but don't be surprised that the children all eat it.

Nutrients In Action Game

Materials needed: Large space for movement
Drum or tambourine
Imagination
Nutrient puppets

Directions:

1. Explain to the children that they are going to become familiar with six nutrients and the special job each one does in the body.
2. Have the children spread out and select a self-space where they won't touch each other.
3. Explain that protein is needed to help build muscles. Have the children demonstrate with movement the use of their muscles for 10 counts (use the drum). Encourage them to look at what kinds of movements their classmates are doing.
4. Explain that iron builds strong blood. Have the children stand very still and place their hand on their heart and feel their heart beat.
5. Explain that vitamin B unlocks food energy. Have the children perform a quick movement around the room using the drum to provide rhythm.
6. Explain that calcium builds strong teeth. Have the children perform a facial movement that shows their teeth.
7. Explain that vitamin C helps heal cuts. Have the children perform a movement while holding their hand over the part of the body where they most often get cuts.
8. Explain that *vitamin A* keeps throats healthy. Have the children move their throats in a swallowing action.

Bread and Jam for Francis

Another enjoyable story that tells what happens when we eat just one type of food. Should be available in local libraries. (By R. Hoban, 31 pages, Harper and Row Publishers, Inc., 10 E. 53rd St., New York, NY 10022)

Nutrients Yum Yum Good Song

Concept: Food contains nutrients. Have the **Healthy Habit Twins** teach the song a verse at a time to correspond with the nutrient curriculum.

(Tune: *Are You Sleeping, Brother John*)

Vitamin B; Vitamin B
Where are you? Where are you?
Gingerbread and peanuts; Gingerbread and peanuts
Yum, yum, good; Yum, yum, good.

Iron, Iron; Iron, Iron
Where are you? Where are you?
Ham and beans and liver; Ham and beans and liver
Yum, yum, good; Yum, yum, good.

Protein, Protein; Protein, Protein
Where are you? Where are you?
Ground beef and tuna fish; Ground beef and tuna fish
Yum, yum, good; Yum, yum, good.

Vitamin C; Vitamin C
Where are you? Where are you?
Watermelon and oranges; Watermelon and oranges
Yum, yum, good; Yum, yum, good.

Vitamin A; Vitamin A
Where are you? Where are you?
Pumpkin pie and spinach; Pumpkin pie and spinach
Yum, yum, good; Yum, yum, good.

Calcium, Calcium; Calcium, Calcium
Where are you? Where are you?
Cheese, milk and yogurt; Cheese, milk and yogurt
Yum, yum, good; Yum, yum, good.

Body Building Song

Concept: Nutrients are helpers needed for special jobs in the body.

Teach the children the song and the actions using the tune of *London Bridge Is Falling Down.* Ask the children to review the food sources for each nutrient after singing each verse.

1. Foods with protein build my muscles** (ground beef, tuna fish)
   Build my muscles, Build my muscles.
   Foods with protein build my muscles
   To build my body.

2. Foods with calcium build strong teeth** (cheese, milk, yogurt)
   Build strong teeth, Build strong teeth.
   Foods with calcium build strong teeth
   To build my body.

3. Foods with iron build strong blood** (ham and beans, liver)
   Build strong blood, Build strong blood.
   Foods with iron build strong blood
   To give me energy.

4. Vitamin A foods keep eyes healthy** (pumpkin, spinach)
   Keep eyes healthy, Keep eyes healthy.
   Vitamin A foods keep eyes healthy
   To build my body.

5. Vitamin B foods unlock energy** (gingerbread, peanuts)
   Unlock energy, Unlock energy.
   Vitamin B foods unlock energy
   To build my body.

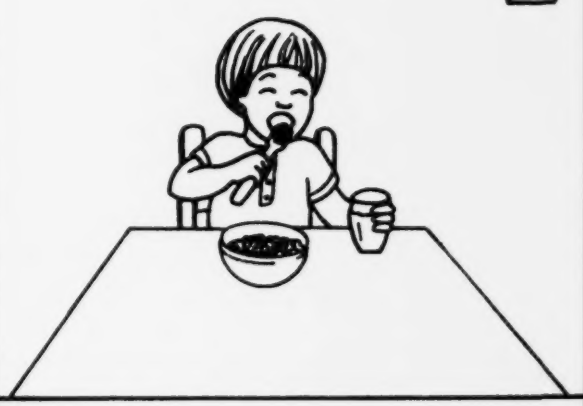
6. Vitamin C foods heal my cuts** (watermelon, oranges)
   Heal my cuts, Heal my cuts.
   Vitamin C foods heal my cuts
   To build my body.

**ACTIONS

1. Flex arm muscle.
2. Click teeth together.
3. Put hand on heart.
4. Blink eyes.
5. Rub tummy.
6. Point to knee.

The food we eat is needed for:

- Growth
- Energy
- Protection



Draw a picture of yourself burning energy.

NUTRITION FOR EARLY CHILDHOOD

HEALTHY HABITS NUTRI-LETTER

Dear Mom or Dad:

We've been learning about the **Healthy Habit** twins. The twins teach me about nutrients inside foods and what they do for my body.

Our teacher will be using the **Show-Me Healthy Habits** curriculum during story time, snack and/or meal time and fun time. Each time we discuss a different nutrient, I'll bring home a *Nutri-Letter* for you to help me with.

How about making a cover so I can make a **Healthy Habits** book?

Thanks.

Love,

_____

Show-Me Healthy Habits: A Nutrition Education Curriculum for Early Childhood was developed by University Extension Area Food and Nutrition Specialists and Human Development Specialists in cooperation with the Nutrition Education and Training Program (NET), Missouri Department of Health, Jefferson City, Missouri.

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Healthy Habits Activity Plan

CALCIUM

WE NEED CALCIUM FOR HEALTHY TEETH AND BONES

NUTRIENT
- Definition
- Requirement
- Food Sources

FUNCTION
- Teeth
- Bones
- Blood

- Identify foods that are good sources of calcium.
- Recognize the importance of developing habits that will promote healthy teeth and bones.
- Meet the RDA requirements for calcium.

FOOD EXPERIENCE

HEALTHY HABITS NUTRI-LETTER

CONTENT . . .CALCIUM

NUTRIENT

Facts:

- More calcium is present in the body than any other mineral.
- Less than about one percent of the calcium is in soft tissue and body fluids such as the blood.
- About 99 percent of the calcium in the human body is in bones and teeth.
- Vitamin D helps the body use calcium.
- The body can use calcium when there is plenty of protein and vitamin C in the diet.
- The body needs more calcium when it is growing, pregnant, lactating or rebuilding tissue.
- The Recommended Dietary Allowance (RDA) for children ages 4 to 6 is 800 milligrams (mg).
- Milk is an outstanding source of calcium. The next best sources of calcium are sardines, salmon, and greens such as mustard and kale.
- Some foods contain calcium but because of the high amount of oxalic acid in them, the body is not able to use the calcium. These foods include spinach, chard, beet greens, chocolate, and rhubarb. (See following chart on food sources.)

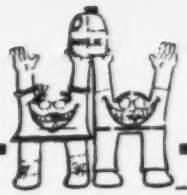
FUNCTION

Calcium is essential to the formation of bone. Bones are in a state of constant change, with formation and dissolution taking place every minute.

- If the amount of calcium in diet is low, then the teeth and bones may not develop normally.
- If the food does not supply enough calcium, then the calcium is drawn from the bones to help regulate body processes.
- If calcium is not replaced in the body, the bones may become weak, misshapen and easily broken.

Calcium also plays a role in:

- ✔ Nerve transmission
- ✔ Blood clotting
- ✔ Muscle contraction
- ✔ Controlling the passage of fluids through cell walls
- ✔ Maintaining "glue" that holds cells together.



SOURCES OF CALCIUM*

BEST SOURCES	AMOUNT NEEDED TO EQUAL 1/3 RDA*
Cheddar Cheese	1-1/3 oz.
Milk	1 cup
Salmon	4.8 oz

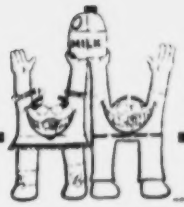
GOOD SOURCES	
Cottage Cheese	2 cups
Greens** (Collards, Turnip)	1-3/4 cups

FAIR SOURCES	
Ice Cream	1-1/2 cups
Broccoli	3 cups
Dry Beans	2 cups

LOW SOURCES	
Sweet Potato	4-/14 cups
Orange	5
Bread	10-12 slices
Perch	1-1/2 pounds
Raisins	2-3/4 cups

* RDA for 4 to 6 year olds is 800 mg.

** Spinach, beet greens, chocolate and rhubarb are not listed because the high amount of oxalic acid in then does not allow the body to use the calcium they contain.



NUTRIENT

Healthy Habit Twins

Use the *Twin* puppets to introduce the nutrient *calcium*. (The following story is an example.)

Girl Twin: You know, I was just wondering...why do you suppose babies drink so much milk?

Boy Twin: Ah gee, you know don't you? Milk has *calcium* in it and we *need* calcium.

Girl Twin: Why do we need calcium? And anyway, what is calcium?

Boy Twin: Well, calcium is a *nutrient* in food. We need calcium to:

- help us grow
- build strong bones and teeth
- help our muscles and nerves develop
- keep our bodies healthy, and
- give us energy

Girl Twin: So, babies aren't the only ones who need calcium, right?

Boy Twin: That's right! In fact, old people and young people, parents and grandparents all need milk.

Girl Twin: But I know a lot of people who don't drink milk. How do they get the calcium they need to stay healthy?

Boy Twin: Oh, there are other ways to get calcium. Calcium is in foods like cheese, yogurt, pudding, salmon, ice cream, and many other foods.

Girl Twin: Gee, I must be getting calcium in the food I eat! Let's see, today I had milk on my cereal, a cheese sandwich for lunch, salmon casserole for supper, and pudding for dessert.

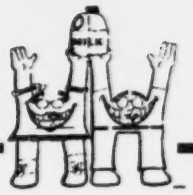
Boy Twin: Sounds like you're doing a good job of eating foods with calcium. How about you boys and girls? What calcium foods have you eaten today?

(Follow up on this question with discussion with children about foods containing calcium and why we need calcium in our bodies.)

Nutrient Yum Yum Good Song

(Tune: *Are You Sleeping, Brother John*) (Complete song on page 33.)

Calcium, Calcium; Calcium, Calcium
Builds our teeth; Builds our teeth
Cheeses, milk and yogurt; Cheeses, milk and yogurt
Yum, yum, good; Yum, yum, good.



What Food Am I?

Cheese

A dairy product is my ilk.
I am made from the curd of milk.

I come in white, orange, yellow or blue,
Hard or soft, in many shapes and sizes too.

Good alone or on a sandwich
In the nutrient calcium I am rich.

When the photographer says "Please,"
Smile at him and say "_____."

Milk

I come from the dairy like my cousin cheese.
I'm a smooth white liquid that's sure to please.

Skimmed or whole, I am told
I taste best when served quite cold.

And every day, you should have some
because inside me is calcium.

There is no food of my ilk.
I am the one and only _____.

Yogurt

My texture is smooth. I taste just right
As a snack anytime day or night.

I come in many flavors. Three
are lemon, peach, and strawberry.

As for my food value,
I supply calcium to you.

My feelings will be so hurt
If you don't like me. I'm _____.

Calcium Food Source Mobile

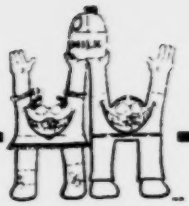
This activity can be planned as a one time activity or spread out over the course of several days, depending on whether you supply the materials or ask the children to bring the materials from home.

For each mobile you will need:

- Wire coat hanger
- Yarn or string
- Cottage cheese container (this and all other items below empty and clean)
- Velveeta box (or similar boxed cheese)
- Yogurt container
- Pudding box
- Quart milk carton
- Small ice cream container
- Salmon or mackerel can
- Macaroni and cheese box

Use some or all of these items in making the mobile. Just try to get the mobile to balance with like-weighted objects, so that it will not be lopsided. If you choose not to make an individual mobile for each child, perhaps you could hook together several hangers and make a large mobile from the ceiling in your classroom.

Talk about the different foods that contain calcium as you collect the items and string them onto the hanger to create your mobile.



Calcium Foods Identification

Refer to activity sheets that show pictures of different foods. Ask children to circle those foods that contain calcium. Talk with them about their choices. They may color the calcium foods if they wish.

Calcium Collage

Collect magazines that have many colorful pictures of foods, and bring them to the center. Have children browse through them - ask them to find pictures of foods that contain calcium.

Have them cut out their calcium food pictures and glue them onto construction paper, making a calcium collage.

FUNCTION

Body Building Song
(Tune: *London Bridge Is Falling Down*) (Complete song on page 34.)

Foods with calcium build strong teeth
Build strong teeth, Build strong teeth.
Foods with calcium build strong teeth
To build my body.

Action: Click teeth together.

Nutrients In Action Game (Complete Action Game on page 32.)

Explain that calcium builds strong teeth. Have the children perform a facial movement that shows their teeth.

***Toothy Tale* Flannel Board Story**

Using the patterns from the story booklet *A Toothy Tale* (Missouri Department of Health), make your own flannel board figures and then tell the story to the children.

If time does not permit tell the story using the booklet which the children can color.

Song: This is the Way We Brush Our Teeth
(Tune: *Here We Go Round the Mulberry Bush*)

This is the way we brush our teeth
Brush our teeth, Brush our teeth.
This is the way we brush our teeth
So early in the morning.

Song: Are You Brushing?
(Tune: *Are You Sleeping, Brother John?*)

Are you brushing? Are you brushing?
Everyday? Everyday?
Yes, I try to brush them.
Yes, I try to brush them.
Twice a day! Twice a day!

"Boney Billy"* Flannel Board Story

The children will learn that milk, cheeses and other calcium foods are needed to develop strong bones.

Boney Billey Flannel Board Story Script

Place Boney Billy parts (small version) on the flannel board to create a skeleton. (Patterns and instructions on pages 45 and 46.)

"Once upon a time there was a skeleton named Boney Billy. He was made up of a skull, rib bones, and spine. (Point to appropriate section on puzzle piece.) He had arm and hand bones and leg and feet bones too." "But Boney was sad because he didn't look like the other skeletons at his school. (Place other skeletons on the flannel board.) What was different?" Children's response: The other skeletons had bigger bones.

"Yes, the other skeletons are bigger and stronger than Boney Billy. Boney Billy wanted to have bigger and stronger bones too, so he asked his mother what to do. (Place mother skeleton on flannel board.) She told Boney Billy that he needed to eat special foods to get stronger and bigger bones. Can anyone name these foods?" (Place food pictures on the he flannel board.) Children's response: Milk and cheese (Swiss, American or cheddar, and cottage cheese are pictured.)

"These calcium foods help you body make strong bones, Boney Billy," his mother said. "You need to start eating these calcium foods instead of candy and sodas all the time."

"You mean if I eat these foods instead of *junk* food, my bones will get stronger?"

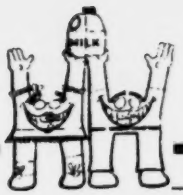
"That's right," said his mother, "if you don't eat candy, cookies and sodas all the time, you'll have more room in your tummy for the good stuff."

Soon Boney Billy gave up candy and cookies and ate cheeses, gave up soda and Kool-aid and drank his milk. He ate the other foods like fruits and vegetables, meat, eggs, and bread. His mother was happy to see him eat these foods and before you could count to five (count slowly to five with the children), his bones began to grow big and strong and he started to look like all the other skeletons at school (replace arm and leg bones with the bigger versions). He jumped up and down and kissed his mom, he was so happy. "Now I know the special foods you need to eat so your body can make strong bones," he said. Who else knows what food you need to eat to develop strong bones?

Children response: Cheese and Milk.

*Nutrition for Preschoolers, Contra Costa County Department of Health Services, 1980.

The End

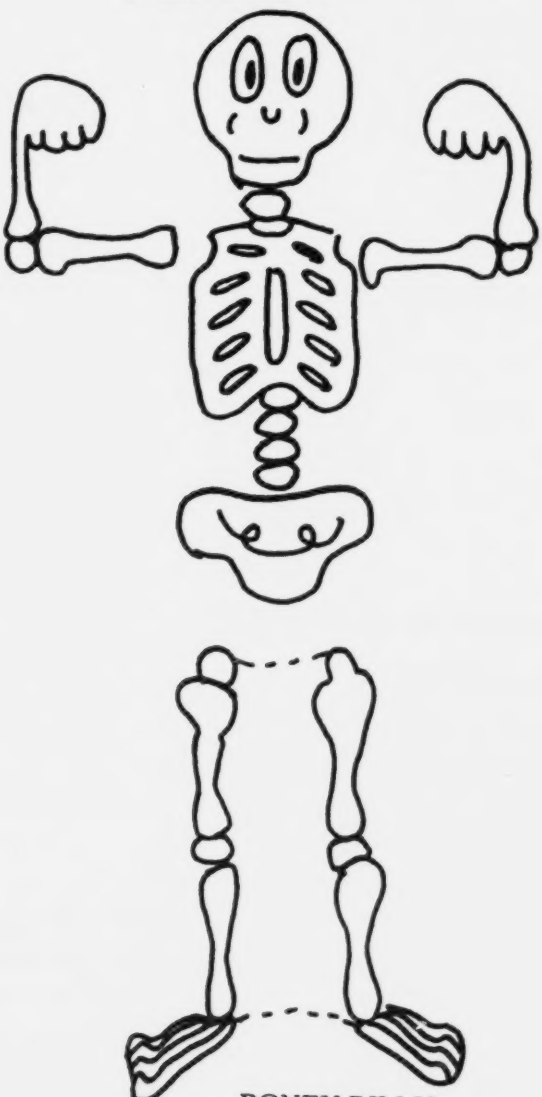


DIRECTIONS FOR MAKING
BONEY BILLY FLANNEL BOARD STORY CHARACTERS

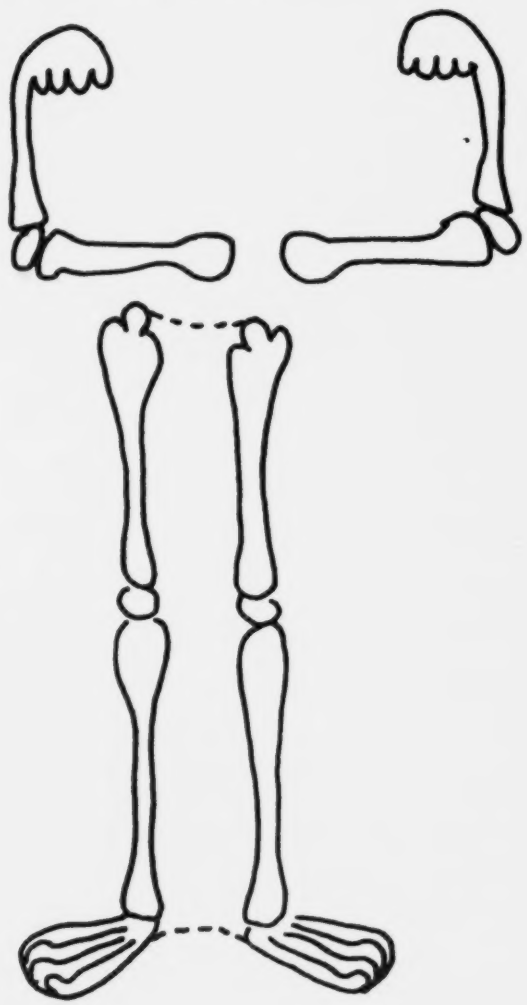
Materials: Fine tip marking pens (assorted colors)
3 - 8" x 10" pieces of heavy pellon
Scissors
Clear contact paper (optional)

Procedure: Trace the following pattern pieces out of pellon and color appropriately with marking pens.

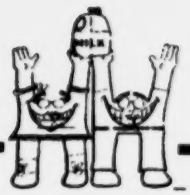
Cover colored side with clear contact paper (optional) and cut out characters. To save time, cut along dotted lines where indicated.



BONEY BILLY
(Small Version)

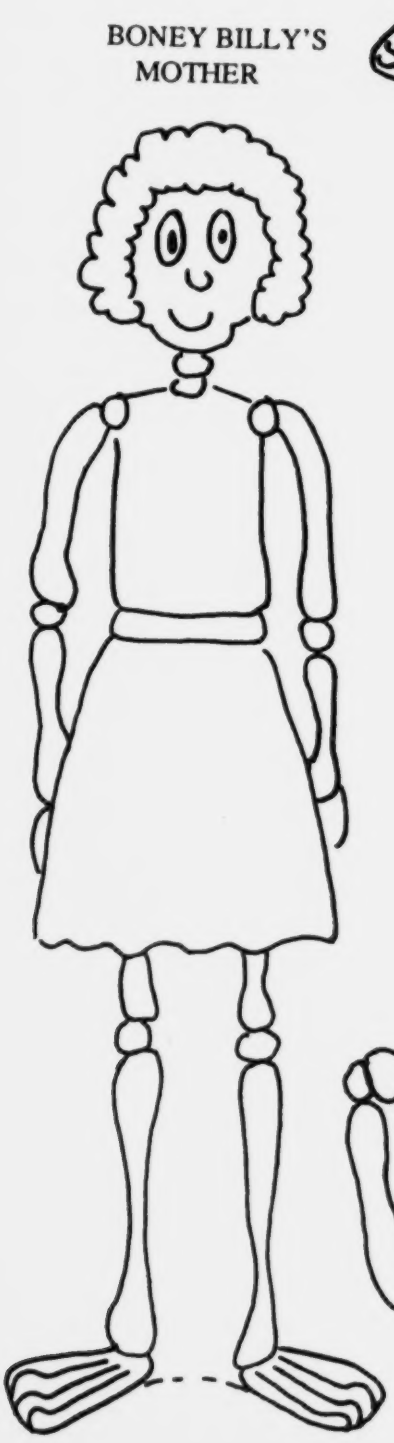


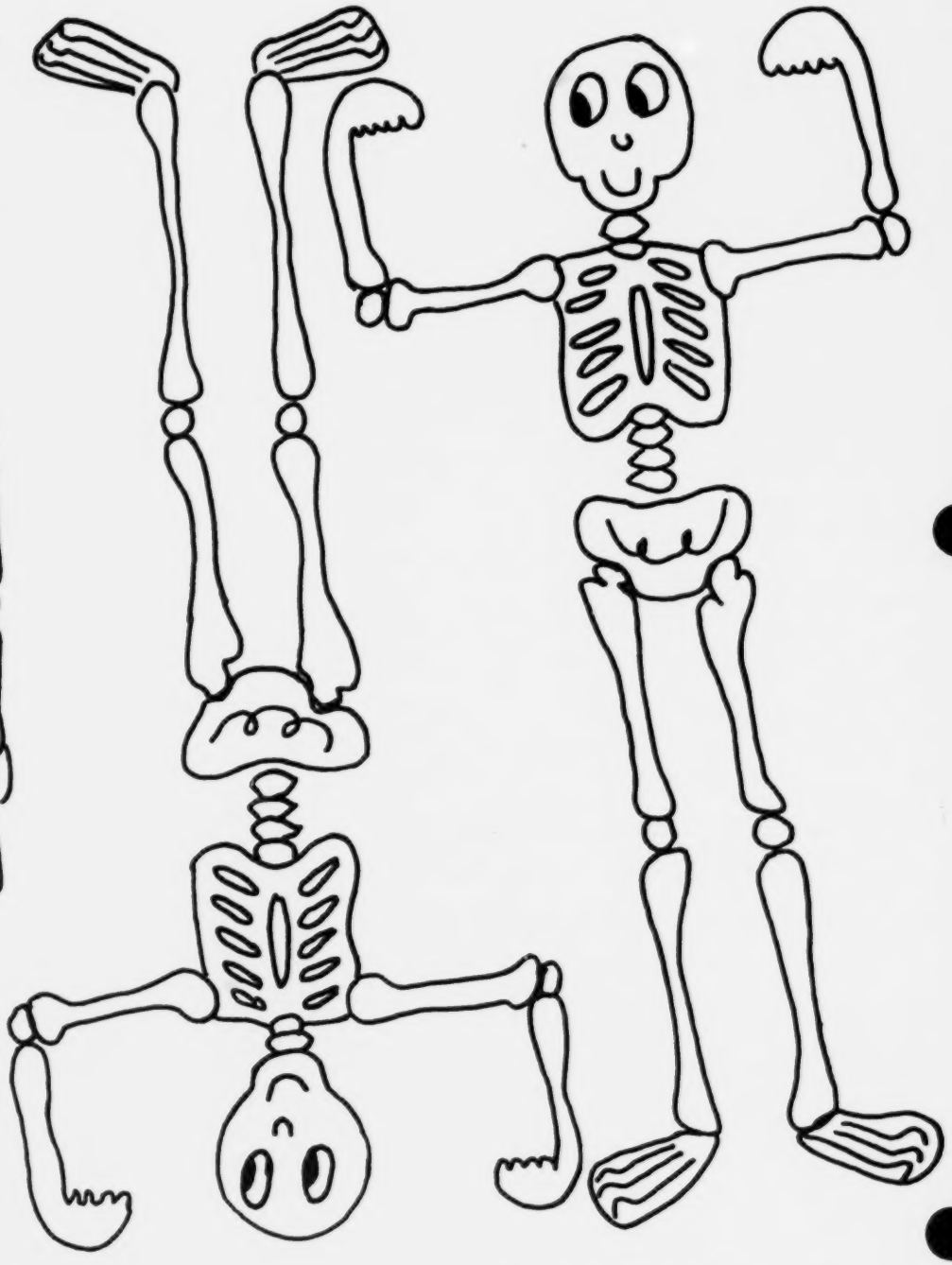
BONEY BILLY
(Large Version)



BONEY BILLY FLANNEL BOARD CHARACTERS (CONTINUED)

BONEY BILLY'S MOTHER





BOYS AT SCHOOL

Calcium Hide and Seek

1. Send two or three children out of the room.
2. Place the *Twins* puppets for calcium on the table or on flannel board.
3. Have children help you hide several of the food models. Include several that are high sources of calcium.
4. Ask the children to return to room and look at the *Twins* puppets. Ask child if he knows what nutrient the *Twins* are talking about (point to key).

   The children may need some help in deciding that these *Twins* depict calcium.
5. Talk with the children about why we need calcium in food.
6. Ask the children to search for hidden foods around the room. If the foods they find are calcium foods, then ask them to place those foods on the table next to the *Twins*.

   Once all the calcium rich foods have been *found* go over again with the children the functions of calcium in the body.

FOOD EXPERIENCES

Calcium Tasting Party

Display and taste several foods that are high in calcium, such as milk, cottage cheese, yellow cheese, yogurt, salmon, etc.

Discuss similarities and differences in taste and texture. Talk about why we need to eat foods that contain calcium.

What Happens If We Don't Get Calcium?

Soak a few clean chicken bones in vinegar for five to seven days. The vinegar will leach the calcium from the bones and only connective tissue will be left. The bones will become soft and pliable. Show the soft bones to the children and discuss with them about foods that develop strong bones.

Calcium helps to make bones and teeth strong.

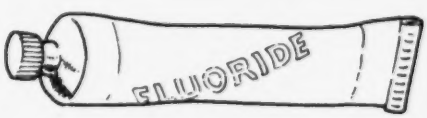
Circle the food items that help build strong bones and teeth.

the items that help to keep your teeth clean and healthy.

salmon

carrots

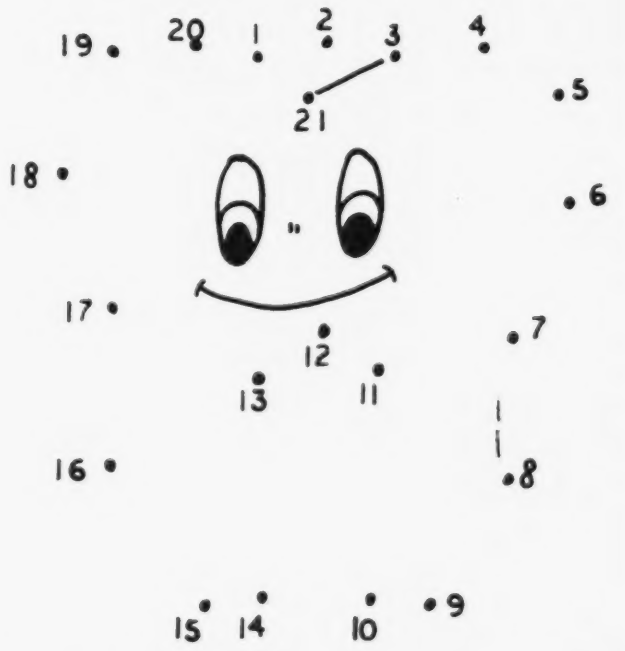
apple



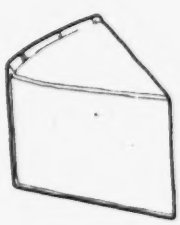
toothpaste

GUESS WHAT?

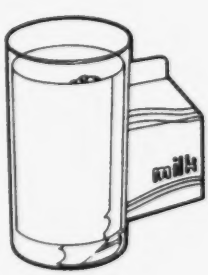
Follow the dots and see...



toothbrush



cheese



milk

CALCIUM

HEALTHY HABITS NUTRI-LETTER

What's Your Calcium Score ?

Choose Several Foods for Calcium Each Day to Meet Your RDA.

FAIR
GOOD
EXCELLENT
UP TO 100 MILLIGRAMS
100-250 MILLIGRAMS
OVER 250 MILLIGRAMS
1/2 cup green beans
1/2 cup broccoli
1/2 cup cottage cheese
2/3 cup ice cream
1/2 cup pudding or custard
1 ounce cheese
(1 inch cube of Cheddar or Swiss, 2 slices American)
1 cup milk (whole, nonfat, buttermilk)
NON FAT DRY MILK
1 cup yogurt
2 slices whole grain or enriched bread
1/2 cup baked beans (kidney, pinto, navy beans)
1/2 cup cooked greens (kale, collards, turnip greens)
4 medium sardines

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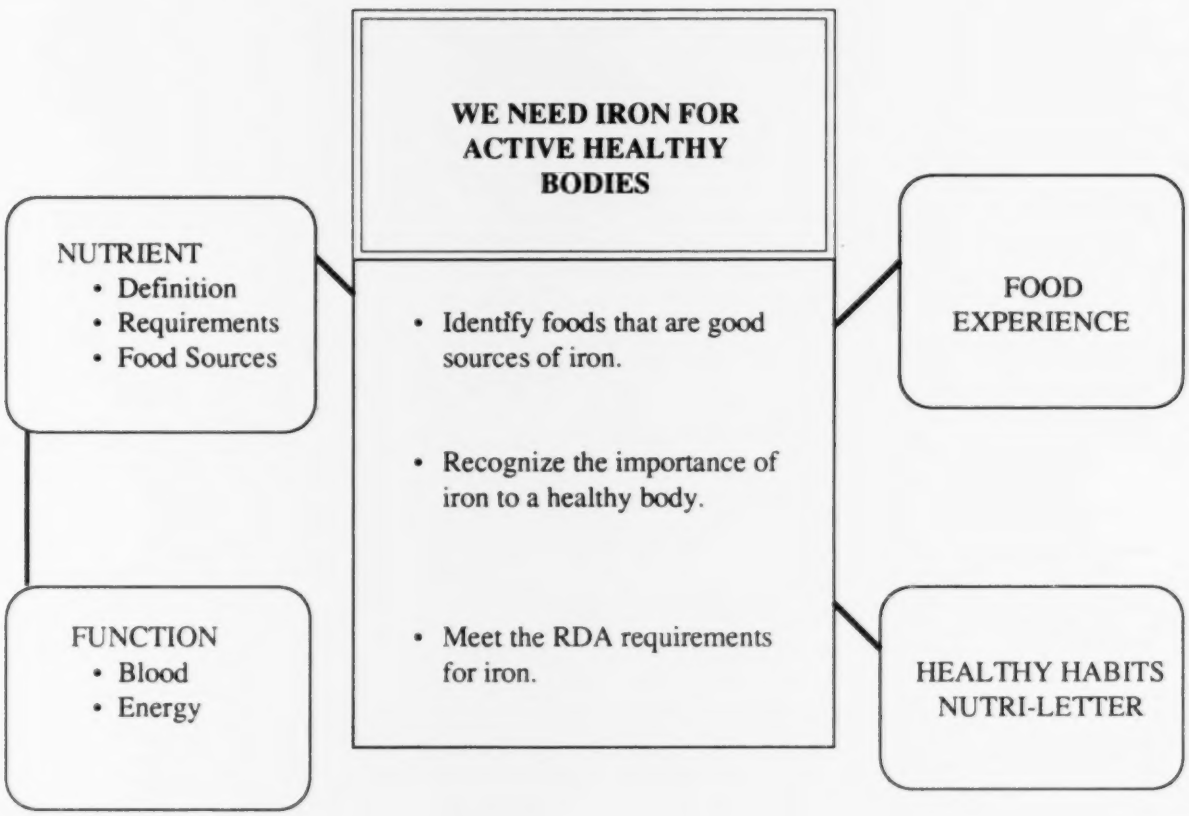
Healthy Habits Activity Plan

IRON



CONTENT . . . IRON

NUTRIENT

- Iron is found in every cell of the body.
- About 80 percent of the body's iron is used in the red blood cells.
- About 20 percent of the body's iron is stored in the liver, spleen, and bone marrow.
- The body rebuilds red blood cells about every four months.
- Loss of blood is the only way any significant amount of iron can leave the body.
- All forms of dietary iron are not equally available for absorption in the body.
  - ✔ iron from animal sources is better absorbed
  - ✔ iron from plant foods is enhanced by eating with meat
  - ✔ vitamin C also enhances absorption
  - ✔ antacids, coffee, tea, fiber, and wheat bran decrease absorption.
- Periods of growth: infancy, childhood, adolescence, and pregnancy involve an increased need for iron.
- The Recommended Dietary Allowance (RDA) for children ages 4 to 6 is 10 milligrams (mg).
- Foods rich in iron are lean meats, liver, egg yolks, dry beans, greens, dried fruit, and whole grain or enriched breads and cereals. (See the following chart on food sources.)

FUNCTION

- Combines with protein to make hemoglobin, the red material of the blood.
  - ✔ Hemoglobin carries oxygen from the lungs to muscles, brain and other parts of the body
  - ✔ When hemoglobin is low, the body may tire easily
- Combines with protein to make myoglobin for the muscles.
- Helps the cells use oxygen.
- Deficiency can result in anemia, although several nutrients (protein, folic acid, vitamin B12, or iron) can add to this deficiency—iron is the most common.

SOURCES OF IRON*

BEST SOURCES	AMOUNT NEEDED TO EQUAL 1/3 RDA*
Liver	1/3 ounce
Dry Beans or Peas	2/3 cup
Lean Beef or Pork	3.3 ounces

GOOD SOURCES	
Greens	1-3/4 cup
Peanuts	1 cup
Molasses	1 1/2 Tablespoon

FAIR SOURCES	
Chicken	3.9 ounces
Egg	2-1/3
Cornbread Muffins	4-3/4
Raisins	2/3 cup

LOW SOURCES	
Cottage Cheese	11 cups
Bread	4-6 slices
Other vegetables	3 cups

* RDA for 4 to 6 year olds is 10 mg.

NUTRIENT

Healthy Habit Twins

Use the *Twin* puppets to introduce the nutrient *iron*. (The following story is an example.)

Girl Twin: I feel terrific! Isn't it a great day?

Boy Twin: I don't seem to have much energy.

Girl Twin: That is too bad. You need some iron-rich foods to eat.

Boy Twin: Iron-rich food. . .what is that?

Girl Twin: Iron-rich foods help your body to have healthy blood. If you eat foods with iron, you will have lots of energy for work and play.

Boy Twin: What are iron-rich foods?

Girl Twin: Iron is found in liver, dark green vegetables like spinach and broccoli, apricots, and raisins.

Boy Twin: I want to be healthy and strong.

Girl Twin: Everybody should eat iron-rich foods.

Boy Twin: I'm hungry. I'm going home for lunch. I hope my mother is cooking liver and broccoli.

Nutrient Yum Yum Good Song

(Tune: *Are You Sleeping, Brother John*)

Iron, Iron; Iron, Iron
Where are you? Where are you?
Ham and beans and liver; Ham and beans and liver
Yum, yum, good; Yum, yum, good.

(Complete song on page 33.)

Bulletin Board Collage

Ask the children to collect pictures or food labels of iron-rich foods.

What Food Am I?

Ham

I am a type of meat
That for flavor is hard to beat.

I'm pink in color, and served cold or hot.
Either way, you'll like me a lot.

I am derived from the big,
And hindmost, quarters of the pig.

I contain many nutrients, especially
Iron and protein and vitamins B.

I am a _____.

Beans

I'm a vegetable and you will agree
I'm as versatile as can be.

In Mexican foods I'm used as meat
At picnics, I'm a special treat.

You don't have to hunt for the iron in me
Cause that nutrient keeps me company.

I am _____.

FUNCTION

Body Building Song
(Tune: *London Bridge Is Falling Down*) (Complete song on page 34.)

Foods with iron build strong blood
Build strong blood, Build strong blood
Foods with iron build strong blood
To give me energy.

Action: Put hand on heart.

Nutrients in Action Game (Complete Action Game on page 32.)

Explain that *iron* builds strong blood. Have the children stand very still and place their hands on their heart and feel their heart beat.

Iron Hide and Seek

1. Send two or three children out of the room.
2. Place the *Twins* puppets for iron on the table or on flannel board.
3. Have children help you hide several of the food models. Include several that are high sources of iron.
4. Ask the children to return to room and look at the *Twins* puppets. Ask child if he knows what nutrient the *Twins* are talking about (point to key).

The children may need some help in deciding that these *Twins* depict iron.

5. Talk with the children about why we need iron in food.

6. Ask the children to search for hidden foods around the room. If the foods they find are iron foods, then ask them to place those foods on the table next to the *Twins*.

   Once all the iron rich foods have been *found* go over again with the children the functions of iron in the body.

FOOD EXPERIENCES

Dried Food Tasting Party

Arrange an assortment of sliced dried fruits such as prunes, apricots, apples on a tray and have children taste.

Heart of Iron Cookies

1/2 cup margarine
1/2 cup peanut butter
1/2 cup brown sugar
1 egg
1 teaspoon vanilla
3/4 cup whole wheat flour
1/4 cup farina cereal (Malt-O-Meal or Cream of Wheat)
1/2 cup nonfat dry milk solids
1/4 teaspoon salt
1/4 teaspoon baking powder
1/4 teaspoon soda
3 tablespoons liquid milk
1 cup branflakes (1/2 c. crushed)
1/2 cup raisins

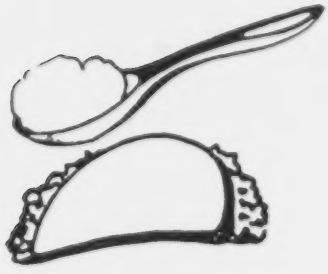
Cream margarine until smooth. Add peanut butter, sugar, egg, and vanilla and beat well. In a separate bowl combine flour, farina, dry milk, salt, baking powder and soda. Add the dry ingredients to the wet and stir well. Add liquid milk, bran flakes, and raisins. Blend. Place a heaping spoonful of dough on a greased cookie sheet and spread it in a circle or cut into heart shapes. Leave a space between cookies as they spread. Bake at 375º for 10-12 minutes. Allow cookies to cool before removing as they are very fragile while warm. Yield - 2 doz.

Granola

Combine raisins, dried apricots or peaches, dates, sunflower seeds for an iron-rich granola.

Iron is one of many minerals you need. Look on the back of this letter and name some iron-rich foods that help us be healthy and have bright red healthy blood.

TACO TWISTS



5. top

6. heat in oven
5 minutes

- wash and chop 1 cup of spinach
- grate 4 ounces of cheese
- brown 1 pound of ground beef
- fill the taco shells with browned meat and spinach
- top with 1 tsp. tomato sauce and cheese
- heat until warm and cheese is melted

IRON

HEALTHY HABITS NUTRI-LETTER

Show-Me Healthy Habits: A Nutrition Education Curriculum for Early Childhood was developed by University Extension Area Food and Nutrition Specialists and Human Development Specialists in cooperation with the Nutrition Education and Training Program (NET), Missouri Department of Health, Jefferson City, Missouri.

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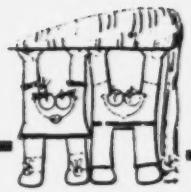


Healthy Habits Activity Plan

VITAMIN A

WE NEED VITAMIN A FOR HEALTHY VISION AND SMOOTH SKIN

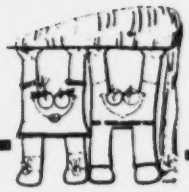
NUTRIENTS
- Defintion
- Requirements
- Food Sources

FUNCTION
- Vision
- Skin

- Identify foods that are good sources of vitamin A.
- Recognize the importance of vitamin A to a healthy body.
- Meet the RDA requirement for vitamin A.

FOOD EXPERIENCES

HEALTHY HABITS NUTRI-LETTER



CONTENT . . . VITAMIN A

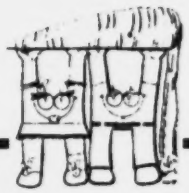
NUTRIENT

- Vitamin A is a *fat-soluble* vitamin so it is stored in the body.
- Carotene is a yellow-orange material that the body changes to vitamin A. Carotene is in dark green and dark yellow fruits and vegetables.
- The amount of yellow or green color in foods is a hint to how much vitamin A is in the food.
- The Recommended Dietary Allowance (RDA) for children ages 4 to 6 is 500 R.E. - retinal equivalents.
- A good source of vitamin A should be eaten every other day.
- Liver is an excellent source of vitamin A. Other good sources are dark green and yellow fruits and vegetables. Animal fats also provide some vitamin A. (See the following chart of food sources.)

FUNCTION

In children, failure to grow, is one of the first signs of poor vitamin A. Vitamin A also:

- Helps eyes adjust to dim light.
- Helps keep skin healthy.
- Is needed for growth.
- Helps guard the lining of the nose, mouth, throat and digestive track against infection.



SOURCES OF VITAMIN A*

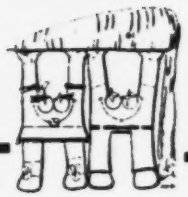
BEST SOURCES	AMOUNT NEEDED TO EQUAL 1/3 RDA*
Liver	.05 ounce (1/3 teaspoon)
Sweet Potato	2 teaspoons
Carrot	2-1/2 teaspoons
Spinach	3 teaspoons
Watermelon	1/2 wedge

GOOD SOURCES	
Apricots	3 Tablespoons
Broccoli	3-1/2 Tablespoons
Peaches	3/4 cup

FAIR SOURCES	
Tomato	2/3
Grapefruit	3/4
Asparagus	2/3 cup

LOW SOURCES	
Corn, yellow	1-1/2 cup
Green peppers	2-2/3
Oranges	3-1/4
Bananas	3-2/3

* RDA for 4 to 6 year olds is 500 Retinal equivalents.



NUTRIENT

Healthy Habit Twins

Use the *Twin* puppets to introduce the nutrient, *vitamin A*. (The following story is an example.)

Girl Twin: Boys and girls have you heard of vitamin A? It's a nutrient that helps keep us healthy.

Boy Twin: What does vitamin A do for us?

Girl Twin: Vitamin A helps your eyes adjust to dim light. It also helps keep your skin smooth and helps keep the lining of your mouth, nose, throat, and digestive tract healthy. Vitamin A helps you grow.

Boy Twin: What foods have vitamin A?

Girl Twin: Fruits and vegetables that are dark green or bright orange. For example: apricots, cantaloupe, carrots, spinach, broccoli and pumpkin. Other foods with lots of vitamin A are liver, cheese, milk, and egg yolk.

Boy Twin: Boys and girls can you name a vitamin A food you ate today? Did anyone eat a carrot? How many of you had milk for breakfast?

Nutrient Yum Yum Good Song

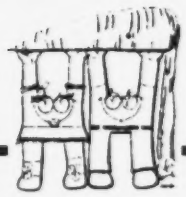
(Tune: *Are You Sleeping, Brother John*)

Vitamin A; Vitamin A
Where are you? Where are you?
Pumpkin pie and spinach; Pumpkin pie and spinach
Yum, yum, good; Yum, yum, good.

(Complete song on page 33.)

Vegetable Prints

Cut vegetables (or fruits) high in vitamin A in thick slices. The children may want to carve a design on the surface of the vegetable. Dip in thick tempera paint and print designs on paper or cloth.



FUNCTION

Body Building Song

(Tune: *London Bridge Is Falling Down*) (Complete song on page 34.)

Vitamin A foods keep eyes healthy
Keep eyes healthy, Keep eyes healthy.
Vitamin A foods keep eyes healthy
To build my body.

Action: Blink eyes.

Nutrients In Action Game (Complete Action Game on page 32.)

Explain that vitamin A keeps eyes healthy. Have the children blink their eyes.

Sing About Charlie Carrot

(Tune: *Marching Through Georgia*)

Charlie Carrot is you know
A charming little man
He wears a cap of handsome green
and overalls of tan.
He is so tall and straight
And he tastes so sweet and good
We think he's a mighty nice food.

Sing Make Meal Time a Happy Time

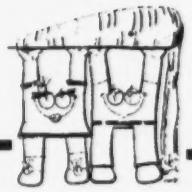
(Tune: *The More We Get Together)*

The more we eat together, together, together
The more we eat together, the healthier we'll be
For meal time is a happy time
And a happy time is meal time
The more we eat together
The happier we will be.

After singing the song ask the children to name a food high in vitamin A. If possible, serve a vitamin A food at this meal.

Plant a Garden

Plant a garden with many vegetables high in vitamin A. As the vegetables are harvested and cooked, discuss with the children the sources and function of vitamin A.



Eye Adjustment in Darkness and Light

Have children look at their eyes in a mirror. Then ask the child to step into a dark room or closet for a few minutes. When the child comes back into the light, have them look at their eyes in a mirror to see how the eyes adjust to light and dark. If a child is frightened have an adult stay with him or her or allow them to watch as other children participate.

Simon Says

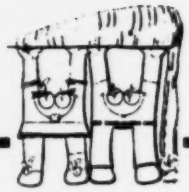
Leader calls *Simon says eat a carrot* as she or he puts hands to mouth and pretends to chew foods. Everyone imitates the teacher if the food mentioned is representative of a predetermined nutrient. (Vitamin A) Other actions to use: carve a pumpkin; plant spinach; eat sweet potatoes; carry a watermelon; pick tomatoes; etc.

Vitamin A Hide and Seek

1. Send two or three children out of the room.
2. Place the *Twins* puppets for vitamin A on the table or on flannel board.
3. Have children help you hide several of the food models. Include several that are high sources of vitamin A.
4. Ask the children to return to room and look at the *Twins* puppets. Ask child if he knows what nutrient the *Twins* are talking about (point to key).

   The children may need some help in deciding that these *Twins* depict vitamin A.
5. Talk with the children about why we need vitamin A in food.
6. Ask the children to search for hidden foods around the room. If the foods they find are vitamin A foods, then ask them to place those foods on the table next to the *Twins*.

   Once all the vitamin A rich foods have been *found* go over again with the children the functions of vitamin A in the body.



FOOD EXPERIENCES

Vitamin A Soup

Children will be able to identify carrots and tomatoes as food sources of vitamin A.

Materials needed: Recipe
Ingredients
Crockpot
Fry pan
Cooking spoon
Peeler
Measuring cups
Bowls and spoons
Kitchen shears or knife
Healthy Habit Twin puppets

Vitamin A Soup

(Yield: 12 1-cup servings)

1 quart water	Measure water and bouillon into pot. Melt
4 bouillon cubes	margarine in small frying pan, add onions
2 tablespoon margarine	and cook until tender. Stir occasionally.
1/2 cup onions, sliced	Wash, peel, and cut up vegetables using knife
6 large carrots, sliced	or scissors. Add all vegetables and
6 medium tomatoes	seasonings to liquid. Cook until tender.
Salt and pepper to taste	

Variations:
1. Omit fat and add raw onions to other vegetables.
2. Use soup bones rather than bouillon.
3. Add cooked noodles, barley, chili beans, rice, etc.
4. Add herbs such as bay leaf, thyme, parsley, etc. for flavor.

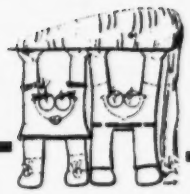
Directions:
1. Prepare soup according to recipe. Have children help in preparation of vegetables.
2. Serve soup for lunch/snack.
3. Ask the children: What is one nutrient found in tomatoes and carrots? (Vitamin A)

Pumpkin Pie

Make from fresh pumpkin or use canned pumpkin. Children could be involved in selecting pumpkin during a field trip. A pumpkin could have been grown in a garden or flower bed at school.

Fresh Spinach

Provide fresh spinach for children to taste. Also cook spinach and let children experience the difference in the tastes.



Vitamin A Helps:

- Keep skin healthy
- Eyes to see in the dark

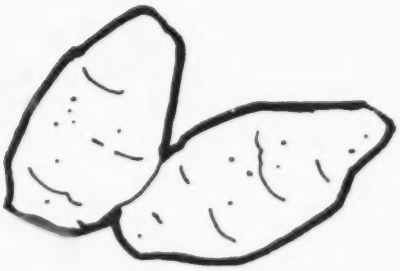
Vitamin A foods are generally two colors. What are they?

the following Vitamin A foods the right color.

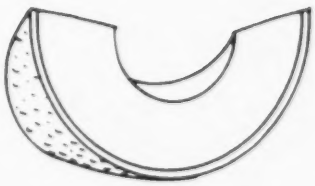
squash

peaches

carrots

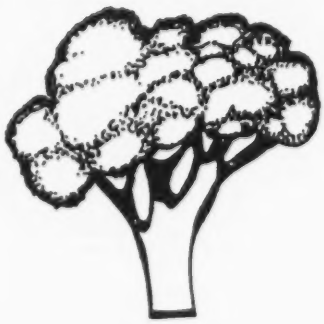


sweet potatoes



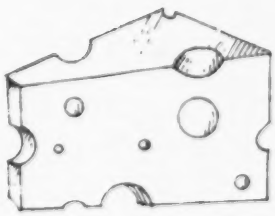
melon

spinach



broccoli

apricots



cheese

VITAMIN A

HEALTHY HABITS NUTRI-LETTER

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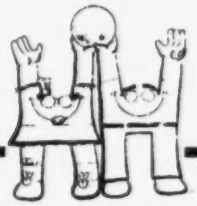


Healthy Habits Activity Plan

VITAMIN C

WE NEED VITAMIN C TO PROTECT HEALTHY BODIES

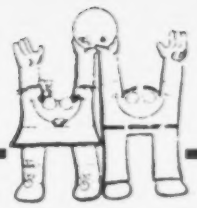
NUTRIENTS
- Defintion
- Requirements
- Food Sources

FUNCTION
- Protecting
- Healing

- Identify foods that are good sources of vitamin C.
- Recognize the importance of vitamin C to a healthy body.
- Meet the RDA requirements for vitamin C.

FOOD EXPERIENCES

HEALTHY HABITS NUTRI-LETTER



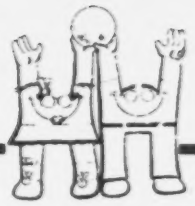
CONTENT . . . VITAMIN C

NUTRIENT

- Vitamin C is a *water-soluble* vitamin. It cannot be stored in the body; therefore, a source of vitamin C should be eaten each day.
- The Recommended Dietary Allowance (RDA) for children age 4 to 6 is 45 milligrams (mg).
- Citrus fruits are among the best and most popular sources.
- The best vegetable sources are broccoli and members of the cabbage family. (See following chart on food sources.)

FUNCTION

- Protects the body from illness and infection.
- Promotes the absorption of iron.
- Promotes wound healing.
- Required for the production of collagen that forms the base for all connective tissues in the body such as: bones, teeth, skin, and tendons.



SOURCES OF VITAMIN C*

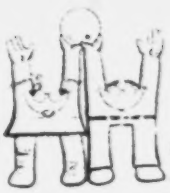
BEST SOURCES	AMOUNT NEEDED TO EQUAL 1/3 RDA*
Orange	1 section
Broccoli	1-1/2 Tablespoons
Strawberries	3 Tablespoons
Liver	1.9 ounces

GOOD SOURCES	
Green Pepper	1/6
Grapefruit	1 section
Tomato	1/2
Sweet Potato	1/2

FAIR SOURCES	
Potato	1/2
Lima Beans & Peas	2/3 cup
Squash, summer	3/4 cup

LOW SOURCES	
Peaches	1-1/4 cups
Corn	2 cups
Apples	2-1/2
Green Beans & Peas	3 cups

* RDA for 4 to 6 year olds is 45 mg.



NUTRIENT

Healthy Habit Twins

Use the *Twin* puppets to introduce the nutrient vitamin C. (The following story is an example.)

Boy Twin: Let's tell the boys and girls about a nutrient called vitamin C. Can you tell the boys and girls what vitamin C does in our bodies?

Girl Twin: Vitamin C helps the body heal cuts and bruises. If you cut your knee, you need to eat the right foods so the body can build new skin. Vitamin C also helps the body prevent disease.

Boy Twin: Boys and girls do you know which foods have lots of vitamin C?

Girl Twin: Help me name some vitamin C-rich foods.

Boy Twin: Oranges, orange juice, grapefruits, grapefruit juice, cantaloupe, tangerines, and strawberries have lots of vitamin C.

Girl Twin: Also broccoli, brussel sprouts, spinach, squash, and cabbage have lots of vitamin C.

Boy Twin: We almost forgot to tell the boys and girls to eat foods with vitamin C e*veryday*.

Girl Twin: Yes, that is very important. The body doesn't store vitamin C so you should eat foods with vitamin C each day.

Both Twins: Boys and girls do you eat vitamin C foods every day?

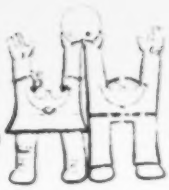
Nutrient Yum Yum Good Song
(Tune: *Are You Sleeping, Brother John*) (Complete song on page 33.)

Vitamin C; Vitamin C
Where are you? Where are you?
Watermelon and oranges; Watermelon and oranges
Yum, yum, good; Yum, yum, good.

More Vitamin C Activities

Use food models to help the children identify vitamin C foods.

Have children collect pictures of vitamin C foods from magazines, etc. and glue each child's collection to a paper plate. Label with the nutrient name, vitamin C.



FUNCTIONS

Body Building Song
(Tune: *London Bridge Is Falling Down*) (Complete song on page 34.)

Vitamin C foods heal my cuts
Heal my cuts, Heal my cuts.
Vitamin C foods heal my cuts
To build my body.

Action: Point to knee.

Nutrient In Action Game (Complete Action Game on page 32.)

Explain that vitamin C helps heal cuts. Have the children perform a movement while holding their hand over the part of the body where they most often get cuts.

Fruits and Vegetables Song
(Tune: *Are You Sleeping, Brother John?*)

Eat those vegetables, Eat those vegetables
Every day, Every day.
Grow strong bodies, Grow strong bodies
That's the way! That's the way!

Eat those fruits, Eat those fruits
Don't miss a day, Don't miss a day.
Keep away the colds, Keep away the colds.
That's the way! That's the way!

Plant Seeds from Citrus Fruits

Discuss with children that some vitamin C foods are called citrus fruits and that another name for vitamin C is ascorbic acid.

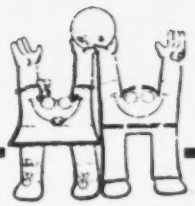
Children will enjoy watching the seeds sprout and grow into plants.

Light and Dark Experiment

Slice fruits that brown easily. Dip some in citrus juice and see what happens.

Let's Go On A Picnic

This activity may vary with the various nutrients. For this experience, take the children on an imaginary vitamin C picnic. Ask each child to name a vitamin C food they would like to take on a picnic. Ask them to find a picture of a vitamin C food and place it in a picnic basket.



Vitamin C Hide and Seek

1. Send two or three children out of the room.
2. Place the *Twins* puppets for vitamin C on the table or on flannel board.
3. Have children help you hide several of the food models. Include several that are high sources of vitamin C.
4. Ask the children to return to room and look at the *Twins* puppets. Ask child if he knows what nutrient the *Twins* are talking about (point to key).

   The children may need some help in deciding that these *Twins* depict vitamin C.
5. Talk with the children about why we need vitamin C from food.
6. Ask the children to search for hidden foods around the room. If the foods they find are vitamin C foods, then ask them to place those foods on the table next to the *Twins*.

   Once all the vitamin C rich foods have been *found* go over again with the children the functions of vitamin C in the body.

FOOD EXPERIENCES

Fruit Kabob

Skewer fruits onto small wooden toothpicks. Allow choices for the children. Provide fruits high in vitamin C. For example: strawberries, oranges, grapefruit, cantaloupe, or tangerines.

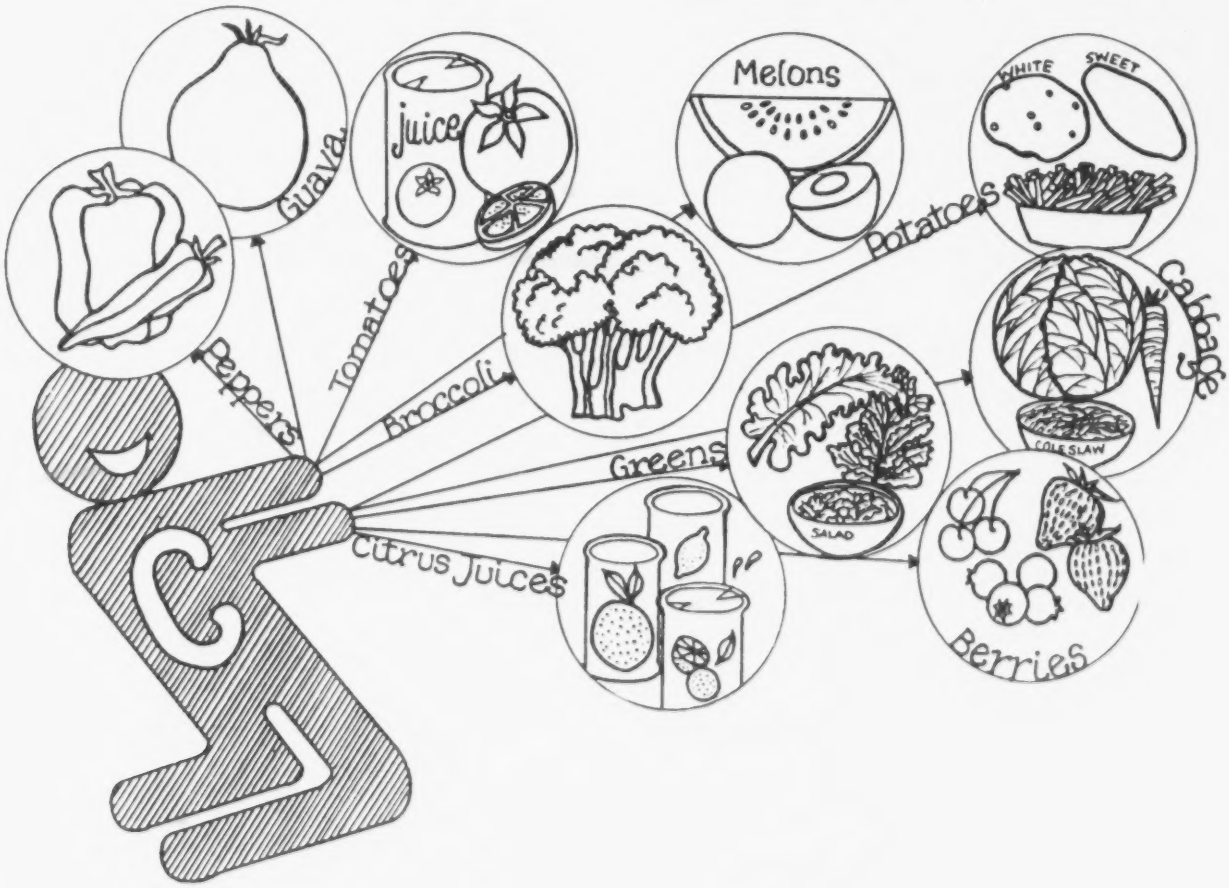
Vitamin C Juice-Sicles

1 (6 ounce) can frozen orange juice
2 cans cold water
3 tablespoon dried milk
sticks and cups
Mix in blender. Pour into cups, insert sticks, and freeze.

Vitamin C for You and Me

- Protects the body from illness and infection
- Promotes healing of cuts and bruises.

in the balloons that contain Vitamin C foods that you like the best.



Adapted from Connecticut Nutrition Education and Training Program Resources.

VITAMIN C

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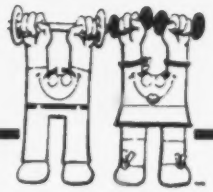


Healthy Habits Activity Plan

PROTEIN

WE NEED PROTEIN TO BUILD STRONG BODIES

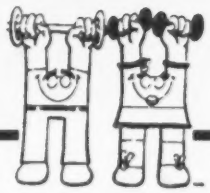
NUTRIENT
- Definition
- Requirements
- Food Sources

FUNCTION
- Muscles
- Blood
- Cells

- Identify foods that are good sources of protein.
- Recognize the importance of protein for a strong body.
- Meet the RDA requirements for protein.

FOOD EXPERIENCES

HEALTHY HABITS NUTRI-LETTER



CONTENT . . . PROTEIN

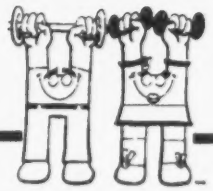
NUTRIENT

- Protein is found in every cell in the body.
- The body needs protein everyday.
- Protein is made up of 22 amino acids.
- There are eight essential amino acids which animal products can provide. Children need two more during their growth period. These essential amino acids are known as the *growth promoters*.
- The remaining amino acids are non-essential. These amino acids are found in both plant and animal foods and are non-essential because our bodies can make them from non-protein foods.
- The Recommended Dietary Allowance (RDA) for children ages 4 to 6 is 30 milligrams (mg.).
- Animal products are concentrated sources of protein containing all essential amino acids. It is good quality because it takes care of both growth and repair.
- Grain and vegetable proteins are called incomplete proteins because they lack some of the essential amino acids. Grain and vegetable proteins are of poorer quality than animal protein. When eaten separately, grain or vegetable protein is not sufficient to maintain both growth and repair. For best results, vegetables and grain proteins needs to be combined to provide complementation. Complementation occurs when the deficiency of an essential amino acid in one vegetable protein can be corrected by the amount of that same essential amino acid available in another vegetable protein. For this to occur, both vegetable proteins must be consumed in the same meal. (See following chart on food sources.)

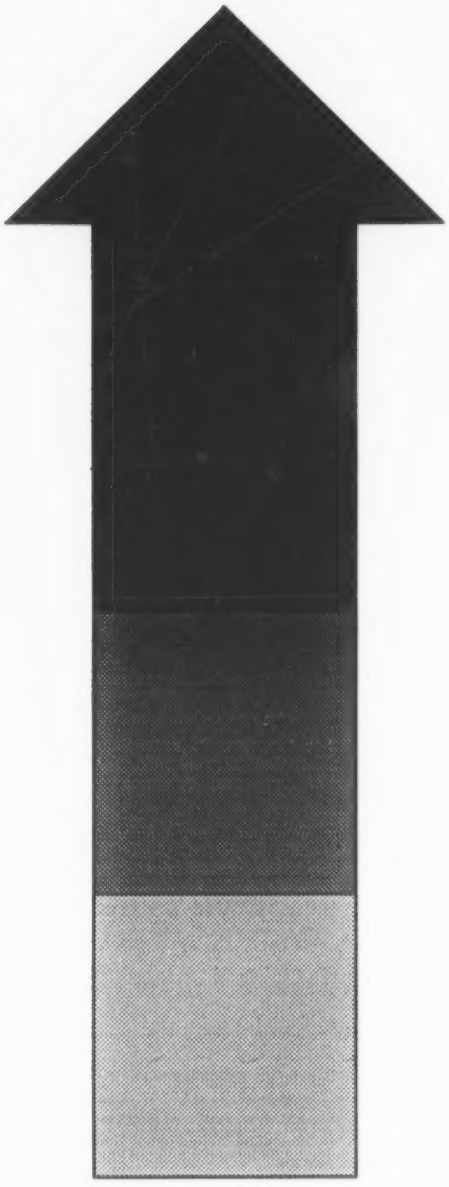
FUNCTION

Protein serves many diverse functions, all of which are essential to life such as:

- Adding new cells to muscles and red blood cells during growth.
- Promoting healing when cells need to be replaced.
- Providing energy.
- Regulating fluid balance.

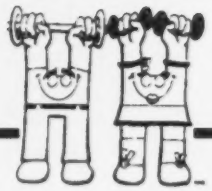


SOURCES OF PROTEIN*



BEST SOURCES	AMOUNT NEEDED TO EQUAL 1/3 RDA*
Beef	1 ounce
Pork	1 ounce
Chicken	1 ounce
Fish	1-3/4 ounces
Cottage Cheese	6 Tablespoons (6 ounces)
GOOD SOURCES	
Peanuts	1/4 cup
Dry Beans	3/4 cup
Frankfurter	1-1/2
FAIR SOURCES	
Cheddar Cheese	1.4 ounce
Eggs	1-2/3
Milk	1-1/4 cup
LOW SOURCES	
Pasta	1-1/2 cups
Cereal	5 cups
Bread	5 slices

* RDA for 4 to 6 year olds is 30 mg.



NUTRIENT

Healthy Habit Twins

Use the Twin puppets to introduce the nutrient protein. (The following story is an example.)

Boy Twin: Hi kids! Did you know that nearly everything in your body is made up of protein?

Girl Twin: Yes. Protein is another nutrient that we need to keep our bodies healthy. Our hair, muscles, and teeth are made up of protein.

Boy Twin: Growing children need plenty of protein, but as you get older, you won't need as much.

Girl Twin: Our muscles are made of protein. We need lots of good food along with plenty of exercise for our muscles to become strong.

Boy Twin: What foods can I eat so I'll be sure to get enough protein?

Girl Twin: Well, there are two kinds of protein - animal protein and plant protein.

Good animal protein comes from meat, fish, chicken, eggs and cheese.

Good plant protein comes from nuts, peanut butter, dry beans and some grains.

Boy Twin: I hope I'm eating enough good protein foods so I can keep my body strong and healthy.

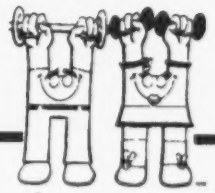
Girl Twin: If you eat a variety of protein foods, it can help you stay healthy. Most people in America eat more than enough protein.

Boy Twin: What kinds of protein foods do you eat, boys and girls?

Nutrient Yum Yum Good Song

(Tune: *Are You Sleeping, Brother John)* (Complete song on page 33.)

Protein, Protein; Protein, Protein
Where are you? Where are you?
Ground beef and tuna fish; Ground beef and tuna fish
Yum, yum, good; Yum, yum, good.



What Food Am I?

Chicken

I'm a type of meat. In a word,
To be specific, I'm a kind of bird.

What parts of me do you like best
The dark legs and thighs or the white breast?

Inside are nutrients that cannot be seen
One is called protein.

I am _____.

Peanut Butter

I come in a jar, my color is brown.
Of peanuts and oil I am a compound.

Two textures I come in: crunchy or smooth
And all kids like me as a general rule.

I am usually served on bread
As a kind of sandwich spread.

It's nutrients that I contain
Especially lots of protein.

I am _____.

Food Ordering at Nutrient Restaurant

Materials needed: Tables, tablecloths, napkins
Paper plates
Food models or pictures of food
Healthy Habit Twins (symbols for each nutrient)
Menus
Chef's hat, apron

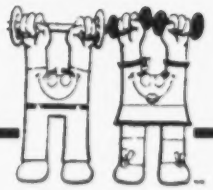
Directions:

1. Attach the appropriate *Twin* symbol to the back of each food.
2. Set up the restaurant with tables, chairs, tablecloths, etc.
3. Instruct the children to take turns pretending to be the customer, chef, waiters, and waitresses.
4. Have the customer order a food with a particular *Twin* nutrient (i.e., a protein food) by giving the waiter/waitress the particular *Twin* nutrient symbol.
5. Have the chef prepare the food that is ordered by selecting a food that contains the nutrient and placing it on a paper plate.
6. Have the waiter/waitress check the accuracy of the chef's selection by comparing the*Twin* which the customer gave him with the *Twin* on the back of the food, and have him serve the food to the customer.

Protein Puzzles

Cut poster board into rectangle shape cards. Glue two pictures of complementary protein foods on each card and cover with clear contact paper. Cut the cards in half so that each half will fit together like a jigsaw puzzle.

Complementary protein foods that can be paired as puzzles: legumes and rice, rice and milk, legumes and milk, legumes and wheat, or nuts, wheat and milk.



FUNCTION

Body Building Song
(Tune: *London Bridge Is Falling Down*) (Complete song on page 34.)

Foods with protein build my muscles
Build my muscles, Build my muscles.
Foods with protein build my muscles
To build my body.

Action: Flex arm muscle.

Nutrients in Action (Complete Action Game on page 32.)

Explain that *protein* \is needed to help build muscles. Have the children demonstrate with movement the use of their muscles for 10 counts (use the drum). Encourage them to look at what kinds of movements their classmates are doing.

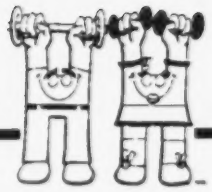
Nutrient Command Game

- Pin or tape *Healthy Habit Twins* symbols on each child, so that all the nutrients are represented.
- Call out a function of a nutrient, starting with protein, for example: "If your *Twins* help build strong muscles, you may stand up." (Refer to content sheets for other nutrients to get functions for all nutrients.)

Protein Hide and Seek

1. Send two or three children out of the room.
2. Place the *Twins* puppets for protein on the table or on flannel board.
3. Have children help you hide several of the food models. Include several that are high sources of protein.
4. Ask the children to return to room and look at the *Twins* puppets. Ask child if he knows what nutrient the *Twins* are talking about (point to key). The children may need some help in deciding that these *Twins* depict protein.
5. Talk with the children about why we need protein in food.
6. Ask the children to search for hidden foods around the room. If the foods they find are protein foods, then ask them to place those foods on the table next to the *Twins*.

   Once all the protein rich foods have been *found* go over again with the children the functions of protein in the body.



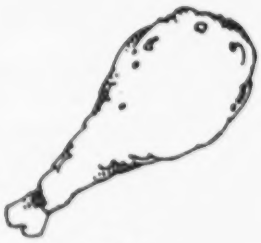
Proteins come from two kinds of sources, plants and animals.

Use a *red* ✏ and (circle) the animal foods.

Use a *blue* ✏ and (circle) the plant foods.

peanut butter

milk

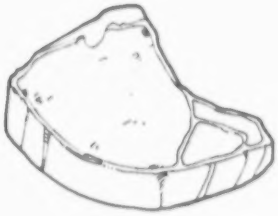


chicken

eggs

rice

fish



meat

pasta

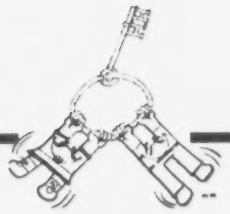
dry beans

PROTEIN

HEALTHY HABITS NUTRI-LETTER

Show-Me Healthy Habits: A Nutrition Education Curriculum for Early Childhood was developed by University Extension Area Food and Nutrition Specialists and Human Development Specialists in cooperation with the Nutrition Education and Training Program (NET), Missouri Department of Health, Jefferson City, Missouri.

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER
services provided on a nondiscriminatory basis



Healthy Habits Activity Plan

B VITAMINS

WE NEED B VITAMINS TO UNLOCK ENERGY IN OTHER NUTRIENTS

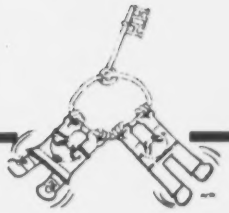
NUTRIENT
- Definition
- Requirements
- Food Sources

FUNCTION
- Appetite
- Growth
- Muscle tone
- Releases energy
- Digestion

- Identify foods that are good sources of the B vitamins--thiamin, riboflavin and niacin.
- Recognize the importance of the B vitamins to a healthy body.
- Meet the RDA requirements for the B vitamins: thiamin, riboflavin and niacin.

FOOD EXPERIENCE

HEALTHY HABITS NUTRI-LETTERS



CONTENT . . . B VITAMINS

Thiamin, Riboflavin, Niacin

NUTRIENT

- B vitamins are *water-soluble* and need to be eaten daily.
- Grain products often are enriched with the B vitamins (thiamin, riboflavin, and niacin.)
- The Recommended Dietary Allowance (RDA) for children ages 4 to 6 are:
  Thiamin - 0.9 milligrams (mg);
  Riboflavin - 1.0 milligrams (mg);
  Niacin - 11 milligrams (mg).
- Meat, grain products, and milk (for riboflavin) generally are good sources of B vitamins. (See following charts on food sources.)

FUNCTION

The B vitamins are the *key* to releasing energy from food.

- Thiamin
  - ✔ Works to trap energy from food: promotes growth, good appetite, and muscle tone.
  - ✔ Deficiency results in a person feeling tired and irritable. Advanced stages will result in muscle weakness and heart failure.

- Riboflavin
  - ✔ Essential for releasing energy from food.
  - ✔ Deficiency results in cracking around the corner of the mouth and deterioration of the eyes.

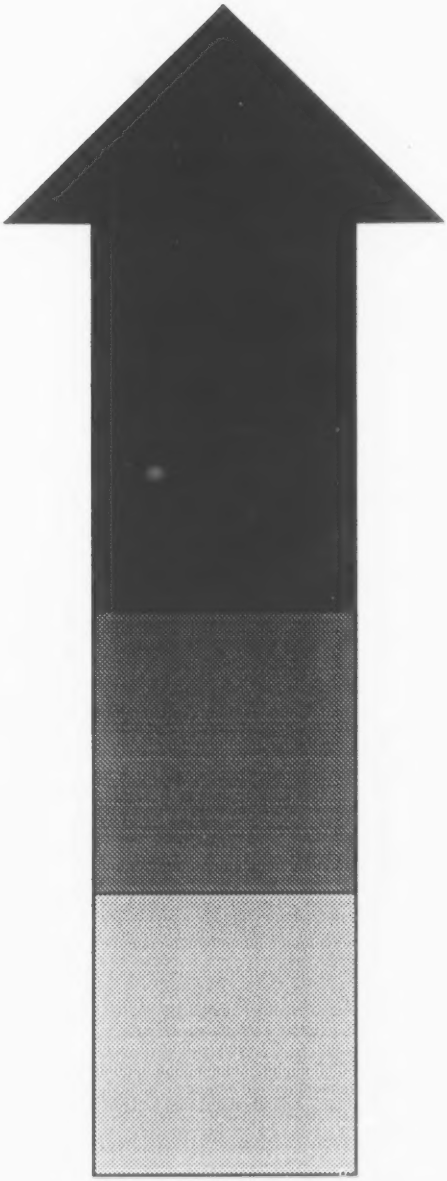
- Niacin
  - ✔ Needed for energy release: Aids digestion, promotes normal appetite.
  - ✔ Deficiency results in a person having a poor appetite, headaches, diarrhea, depression, and anxiety.

SOURCES OF THIAMIN*

BEST SOURCES	AMOUNT NEEDED TO EQUAL 1/3 RDA*
Pork	1 ounce
GOOD SOURCES	
Cereals	1 cup
Liver	1-1/2 ounces
FAIR SOURCES	
Milk	3-1/3 cups
Poultry	13 ounces
Beef	14 ounces
Eggs	7-1/2
LOW SOURCES	
Peanuts	2/3 cup
Fish	30 ounces

* RDA for 4 to 6 year olds is 0.9 mg.

SOURCES OF RIBOFLAVIN*



BEST SOURCES	AMOUNT NEEDED TO EQUAL 1/3 RDA*
Milk	7/8 cup
Liver	13 ounce
GOOD SOURCES	
Cereals	1 cup
Dark Green Leafy Vegetable	1-1/3 cup
FAIR SOURCES	
Eggs	2-1/4
Poultry	2.7 ounces
Pork	3.7 ounces
Beef	5 ounces
LOW SOURCES	
Peanuts	1-3/4 cups
Fish	16.5 ounces

* RDA for 4 to 6 year olds is 1.0 mg.

SOURCES OF NIACIN*

BEST SOURCES	AMOUNT NEEDED TO EQUAL 1/3 RDA*
Peanuts	2-1/3 Tablespoons
GOOD SOURCES	
Poultry	1.7 ounces
Pork	2 ounces
Beef	2.4 ounces
Cereals	1-1/4 cup
FAIR SOURCES	
LOW SOURCES	
Milk	18-1/3 cups
Eggs	not enough to measure

* RDA for 4 to 6 year olds is 11 mg.

NUTRIENT

Healthy Habit Twins

Use the *Twin* puppets to introduce the *B vitamins*. (The following story is an example.)

Girl Twin: Hi there, boys and girls! Today we want to tell you about the B vitamins.

Boy Twin: That's right. B vitamins help to unlock the *energy* in food. Sort of like a key unlocks a door.

Girl Twin: B vitamins help us feel happy, help our food to digest and help keep our skin healthy.

Boy Twin: Do you know some foods that contain B vitamins, boys and girls? (pause) Well, B vitamins are found in breads and cereals, milk, meat, beans and peas.

Girl Twin: We should eat vitamin B foods everyday, so we can stay healthy.

Boy Twin: I think I'll go home right now and eat some good vitamin B foods, like roast pork, whole wheat bread, and milk.

Girl Twin: That sounds good to me. Goodbye, boys and girls. See you again real soon!

Nutrient Yum Yum Good Song
(Tune: *Are You Sleeping, Brother John*) (Complete song on page 33.)

Vitamin B; Vitamin B
Where are you? Where are you?
Gingerbread and peanuts; Gingerbread and peanuts
Yum, yum, good; Yum, yum, good.

What Food Am I?

Bread

I am square and brown and porous
And cut in slices but bought in loaves.

I can also be a roll or bun.
Inside of me is vitamin B.

I can be served at every meal
So far-reaching is my appeal.

About me, enough's been said
Now you know my name is _____.

Sunflower Seed

I'm here to tell
I come in a shell.

My cover is black and white
But it takes many to fill one bite.

One of the nutrients found in me
Is the key - vitamin B.

Even birds like me for feed.
Can you guess I'm a _____.

FUNCTION

Body Building Song (Tune: *London Bridge Is Falling Down*) (Complete song on page 34.)

Vitamin B foods unlock energy
Unlock energy, Unlock energy.
Vitamin B foods unlock energy
To build my body.

Action: Rub tummy.

Little Red Hen (Puppet or flannel board story — patterns included on pages 99 and 100.)

Once there was a little red hen who lived on the farm with all of her baby chicks. She was a busy red hen. She wanted to grow some vitamin B food for her baby chicks so she decided to plant some wheat.

She went to the barnyard and asked all of the animals if they would help her plant some wheat. *Not I*, said the cow (display cow puppet). *Not I*, said the pig (show the pig puppet). *Not I*, said the sheep (display the sheep puppet). *Not I*, said the goat (show the goat puppet). So the little red hen went to the field and planted all the wheat herself.

Soon the wheat was beginning to grow. The ground was dry, so the little red hen decided to water the new plants. Again she asked the barnyard animals who would help her water the field. *Not I*, said the pig. *Not I*, said the goat. *Not I*, said the sheep. So, the little red hen did all of the watering herself.

In a few months, it was time for the little red hen to go into the field and cut the wheat. Once again she asked the barnyard friends who would help her cut the wheat. The cow said, *Not I*. The goat said, *Not I*. The pig said, *Not I*. The little red hen didn't get any help at all so she cut all the wheat herself.

Now it was time to grind the wheat into flour full of B-vitamins. She asked her animal friend for help but they all told her, *Not I*. So, the little red hen worked very hard and she ground all of the wheat into flour.

When she started to make the flour into vitamin B bread, she asked for help from her friends the animals. The cow said, *Not I, I can't help you.* The pig said, *Not I*. The goat said, *Not I*. And, of course, the sheep said, *Not me*.

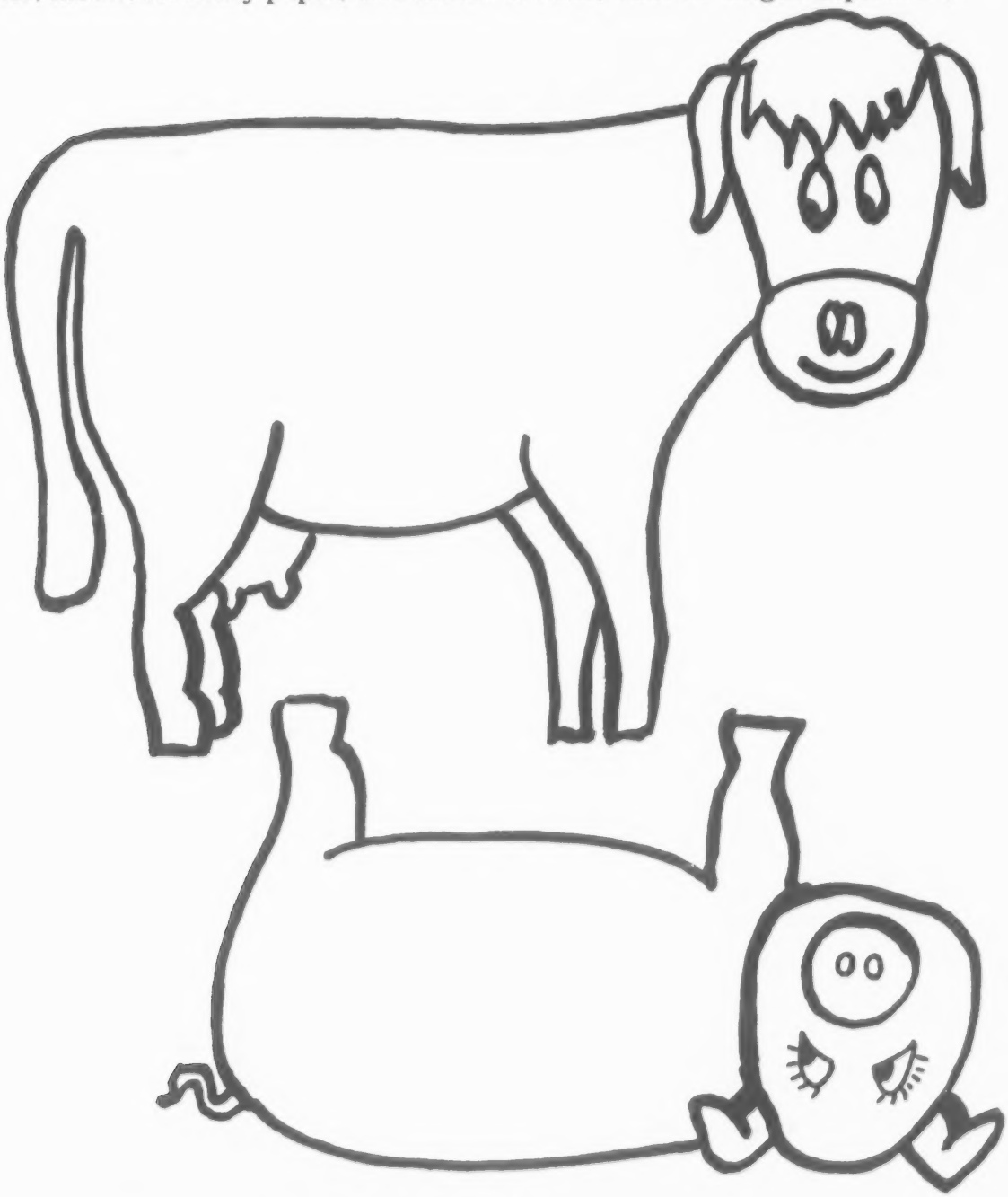
When the vitamin B bread was all baked to a golden brown, the little red hen asked who would help her eat the bread. *I will*, said the cow. *Me too*, said the pig. *Let me eat some*, said the goat. *I'll eat too*, said the sheep.

Oh, no, said the little red hen. *You did not help me plant the wheat or water the wheat or cut the wheat or grind the flour. You didn't help me bake the bread, so I am not going to share the bread with you. My baby chicks and I will enjoy this B vitamin bread by ourselves.*

Little Red Hen

Stick Puppet Patterns

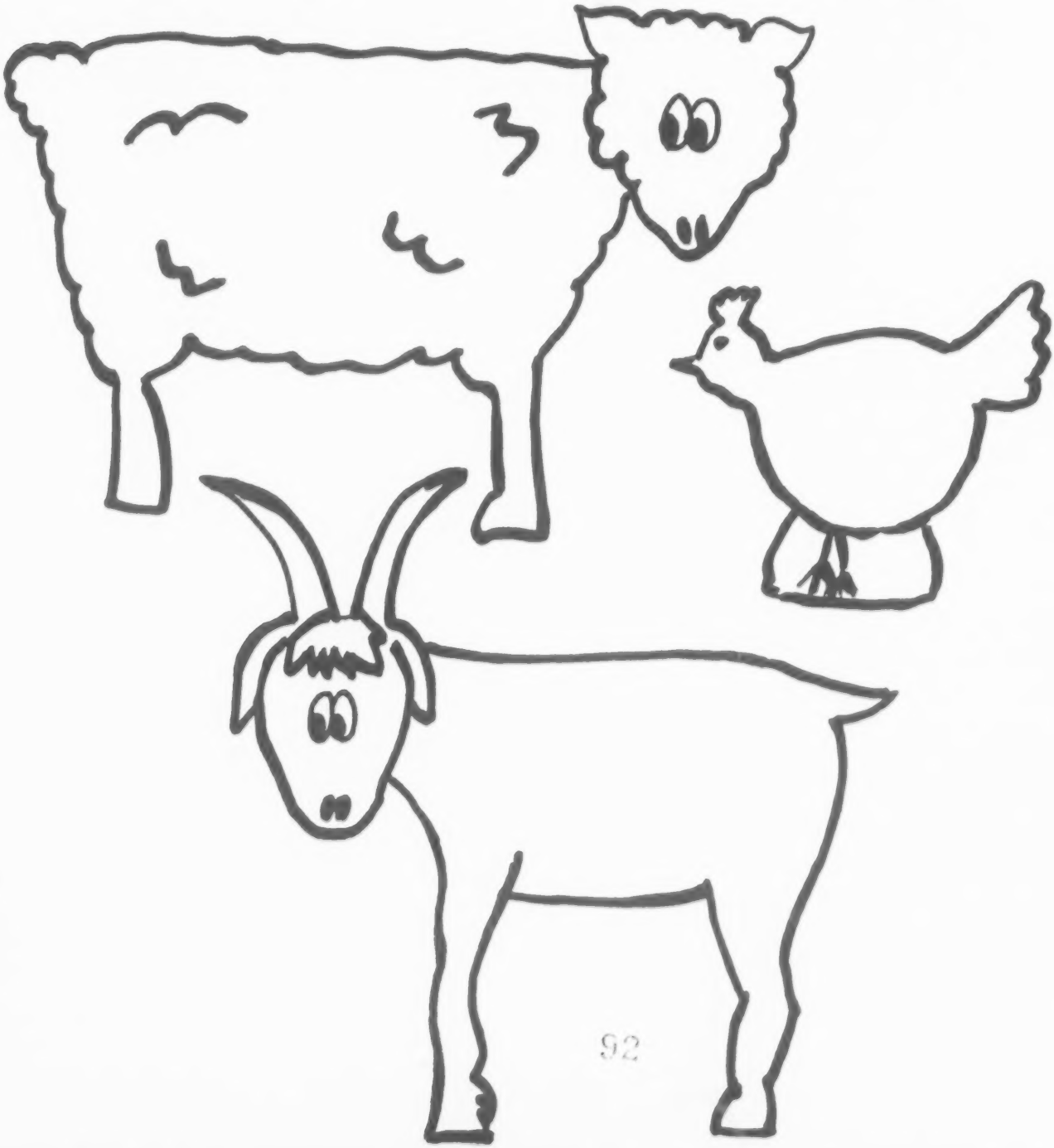
(Color, mount on heavy paper, and attach to stick, ruler or tongue depressor.)



Little Red Hen

Stick Puppet Patterns

(Color, mount on heavy paper, and attach to stick, ruler or tongue depressor.)



Nutrients in Action Game

Explains that vitamin B unlocks food energy. Have the children perform a quick movement around the room using the drum to provide rhythm.

(Complete Action Game on page 32.)

1-2-3 Energy

(Tune of *Twinkle, Twinkle, Little Star*)

1-2-3 Energy
That's what B unlocks for me
Gingerbread and peanuts today
For vitamin B to think and play
1,2,3 Energy
That's what B unlocks for me.

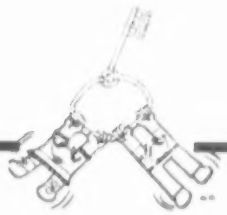
After singing the song a few times, discuss the function of B vitamins: The B vitamins help *unlock* the energy in food. B vitamins help our minds think and help our skin stay smooth. B vitamins also help our food to digest.

B Vitamins Hide and Seek

1. Send two or three children out of the room.
2. Place the *Twins* puppet for B vitamins on the table or on flannel board.
3. Have children help you hide several of the food models. Include several that are high sources of B vitamins.
4. Ask the children to return to room and look at the *Twins* puppets. Ask child if he knows what nutrient the *Twins* are talking about (point to key).

   The children may need some help in deciding that these *Twins* depict the B vitamins.
5. Talk with the children about why we need B vitamins in food.
6. Ask the children to search for hidden foods around the room. If the foods they find are B vitamin foods, then ask them to place those foods on the table next to the *Twins*.

Once all the vitamin B rich foods have been *found* go over again with the children the functions of B vitamins in the body.



FOOD EXPERIENCES

Grinding Grain

In the classroom, let the children attempt to grind some wheat or corn kernels with rocks. If available, use an inexpensive grain-grinder to let the children grind the grain. Then discuss that grain is ground at a mill to make flour which is the main ingredient of flour.

Whole Wheat Flour and White Flour

- Display a dish of whole wheat flour and a dish of white flour. Encourage the children to compare the two types of flour, describing how they are alike and how they are different.
- For a snack, serve both whole wheat bread and white bread with butter or margarine. Ask the children to compare the two kinds of bread in terms of taste, texture, and appearance.
- Ask the children which bread contains B vitamins. (If the white bread is enriched, they both will contain B vitamins.)

Whole Grain Collages

- Have heavy paper or cardboard, glue, paintbrushes and dishes of rice, wheat, corn, dry beans and barley available. Let the children *paint* a design on the paper with glue, then sprinkle the grains over the glue. After the glue is dried the pictures can be hung on the wall.
- For a variation use assorted sizes and shapes of macaroni to create an interesting collage.

Recipe: Date-Cinnamon Granola

4 cups quick-cooking oatmeal
1 pkg. shredded coconut
1 cup chopped pecans
1/2 cup sunflower seeds
3/4 t. salt
1 t. cinnamon

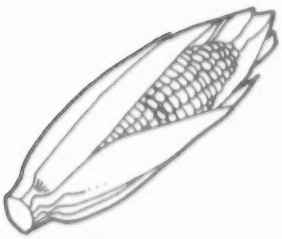
Combine above ingredients in a bowl, then mix with:

1/2 cup honey
1/3 cup vegetable oil
1/2 t. vanilla
1 cup chopped dates (raisins could be substituted)

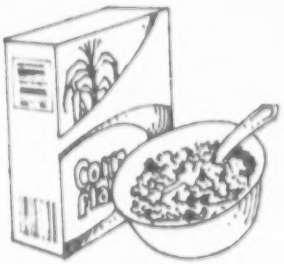
Divide mixture into two parts and put into two pans. Bake at 350° stirring occasionally for 25 minutes. Add 1 cup chopped dates (raisins can be substituted) about 2 minutes before mixture is done.

The **to releasing energy from food.**

Circle and foods rich in B vitamins.



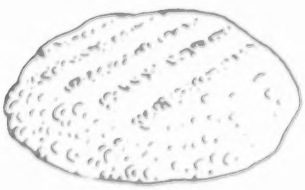
corn



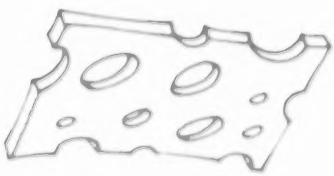
cereal

seeds

cottage cheese



hamburger



cheese

banana

milk

apple

B VITAMINS

HEALTHY HABITS NUTRI-LETTER

The

to releasing

energy from food.

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services provided on a nondiscriminatory basis

Appendices

This is a list of organizations that can provide free or low-cost food and nutrition materials. We suggest that you make your requests as far as possible in advance since in most cases you will need to obtain publication lists, and ordering forms. Check prices and availability, and allow for mailing delays. Inclusion of a publication in this list, or in the Food and Nutrition Information Center collection, does not indicate endorsement by the U.S. Department of Agriculture (USDA) or by the authors of this manual, nor does USDA ensure the accuracy of all information in the publications.

Professional/Volunteer Organizations

American Cancer Society
3322 American Avenue
P.O. Box 1066
Jefferson City MO 65102

American Dental Association
211 East Chicago Avenue
Chicago IL 60611

American Diabetes Association
National Service Center
1660 Duke Center
P.O. Box 25757
Alexandria VA 22314

American Dietetic Association
620 N. Michigan Avenue
Chicago IL 60611

American Heart Association
National Center
7320 Greenville Avenue
Dallas TX 75231

American Heart Association
St. Louis Chapter
4643 Lindell
St. Louis MO 63108

American Heart Association
Kansas City Chapter
9401 Reeds Road
Overland Park KS 66207

American Heart Association
Central Region
105 East Ash, Suite 2
P.O. Box Q
Columbia MO 63105

American Medical Association
Food and Nutrition Services
525 North Dearborn Street
Chicago Il 60610

American Red Cross
18th and E Streets
Washington DC 20006

American School Food Service Association
5600 S. Quebec Street 300B
Englewood CO 80111

Government and State Agencies

Missouri Department of Health
Films and Literature Unit
P.O. Box 570
Jefferson City MO 65102

Missouri Department of Health
Nutrition Education and Training
P.O. Box 570
Jefferson City MO 65102

Missouri Department of Agriculture
Agri-Missouri
P.O. Box 360
Jefferson City MO 65102
A complete listing of contacts for major agricultural commodity organizations in Missouri.

U.S. Department of Health and Human Services
Public Health Service
5600 Fishers Lane
Rockville MD 20857

Government and State Agencies (cont.)

U.S. Department of Agriculture
Human Nutrition Information Service
6505 Belcrest Road, Room 360
Hyattsville MD 20782

National Health Information
Clearinghouse
P.O. Box 1133
Washington DC 20013

National Maternal and Child
Health Clearinghouse
3520 Prospect Street, N.W.
Washington DC 20057

U.S. Department of Health and
Human Services
National Institutes of Health and
Human Services
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Bethesda MD 20014

U.S. Department of Agriculture
Office of Governmental and
Public Affairs
Washington DC 20250

U.S. Government Printing Office
Superintendent of Documents
Washington DC 20402-9325

Food Companies and Agencies

American Bakers Association
1111 14th Street, N.W.
Washington DC 20005

American Egg Board
1460 Renaissance Drive, Suite 301
Park Ridge IL 60068

Missouri Egg Merchandising Council
Eastgate Building
Columbia MO 65201

American Institute of Baking
1213 Bakers Way
Manhattan KS 66502

Food Companies and Agencies (cont.)

American Meat Institute
P.O. Box 3556
Washington DC 20007

American Sheep Producers Council
200 Clayton Street
Denver CO 80206

Dairy Council of Greater Kansas City
5200 East 45th Street
Kansas City MO 64130

Dairy Council - St. Louis District
8710 Manchester
St. Louis MO 63144

National Livestock & Meat Board
444 North Michigan Avenue
Chicago Il 60611

Missouri Beef Industry Council
2015 Missouri Boulevard
Jefferson City MO 65101

National Pork Producers Association
P.O. Box 10383
Des Moines IA 50306

Missouri Pork Producers Association
6235 Cunningham Road
Columbia MO 65201

Potato Board
1835 South Colorado Boulevard
Denver CO 80222

Rice Council
P.O. Box 740123
Houston TX 77450

United Fresh Fruit and Vegetable
Association
777 N. Washington Street
Alexandria VA 22314

PATHFINDERS

The **Food and Nutrition Information Center** (FNIC), Room 304, National Agricultural Library, Beltsville, MD, 20705, (301) 344-3719. FNIC has developed PATHFINDERS on specific food and nutrition topics. A PATHFINDER is a short bibliography designed to give guidance during the initial states of a search for information on resources on a particular topic. Most topics have separate lists of appropriate resources for three user levels: CONSUMER, EDUCATOR, or PROFESSIONAL.

Topics include:

- Sports Nutrition
- Diet and Hypertension
- Nutrition During Adolescence
- Fad Weight loss Diets
- Nutrition, Fitness and Well-Being*****
- Nutrition and Dental Health
- Nutrition and the Handicapped
- Nutrition and the Elderly
- Nutrition for Pregnancy*
- Weight Control
- Teenage Pregnancy & Nutrition
- Vitamin/Mineral Supplements**
- Dietary Fat and Heart Disease
- Osteoporosis
- Commonsense Nutrition**
- Vegetarianism
- Diet and Cancer
- Nutrition and Diabetes
- Food Composition
- Nutrition, Learning and Behavior
- Anorexia Nervosa and Bulimia
- Nutrition and Alcohol
- Nutrition Misinformation
- Nutrition for Infants and Toddlers*
- Food Irradiation+*
- Irradiated Fruit+****
- Safety and Wholesomeness of Irradiated Foods+*****
- Children's Literature on Food and Nutrition***

\+ Developed by the Food Irradiation Information Center
* Consumer level only
** Consumer and educator levels only
*** Educator level only
**** Professional level only
***** Educator and professional levels only

Single copies are available free of charge from FNIC. You may reproduce as many copies as you wish.

Additional Resources

- Regional Health and Nutrition Coordinators Office
- State and County University Extension Centers Home Economics and 4-H Offices
- Large grocery stores, check with the Consumer Affairs Office
- Hospitals and clinics, try the dietary or food-service departments
- State and local health departments
- Food companies, for example:
  Best Foods, P.O. Box 8000 International Plaza, Englewood Clifts, NJ 07632
  General Foods, 250 North Street, White Plains, NY 10625
  General Mills, Inc., P.O. Box 1113, Minneapolis, MN 55440
  Heinz Company, P.O. Box 2899, Boston, MS 02277-2899
  Kellogg Company, One Kellogg Square, P.O. Box 3599, Battle Creek, MI 49016
  Kraft, Inc., Kraft Court, Glenview, IL 60025
  McDonald's Nutrition Information Center, McDonald's Corporation, McDonald's Plaza, Oak Brook, IL 60521
  Nabisco Brands, East Hanover, NJ 07936
  Oscar Mayer and Company, P.O. Box 7188, Madison, WI 53707
  Procter and Gamble, 301 East Sixth Street, P.O. Box 599, Cincinnati, OH 45202
  Quaker Oats Company, 2400 Merchandise Mart Plaza, Chicago, IL 60654

  (These companies may offer food-service recipes as well as consumer food and nutrition information. Address inquiries to the PUBLICATION or INFORMATION Office.)
- Companies that have quantity recipes, table tents, product posters, etc., are listed in various monthly trade journals.
- University public health, food science or nutrition department (for example: the Penn State Nutrition Center (for general nutrition information), the Pennsylvania State University, Benedict House, University Park, PA 16802
- *Directory of Food and Nutrition Information Services and Resources*, Robyn C. Frank, Editor, 1984, Oryx Press, 2214 North Central at Encanto, Phoenix, AZ 85004-1483
- *Healthy Mothers, Healthy Babies Directory of Educational Materials*, lists maternal and child health education materials, available free of charge from the American College of Obstetricians and Gynecologists, Office of Public information, 600 Maryland Avenue, S.W., Washington, DC 20024
- Consumer Information Center, Pueblo, CO 81009. Write for the free *Consumer Information Catalog*, which list several nutrition and food-related publications (202) 566-1794.

HOW WERE THE NUTRI-LETTERS USED IN YOUR HOME?							
PLACE A CHECK (✔) IN AS MANY COLUMNS AS APPLIES TO THE STATEMENT.	**Nutrition for Early Childhood**	**Calcium**	**Iron**	**Vitamin A**	**Vitamin C**	**Protein**	**B-Vitamins**
1. My child brought this **Nutri-Letter** home.							
2. Who read and/or completed the activities in the **Nutri-Letter**?							
* Parent and Child							
* Older Brother or Sister and Child							
* Parent only							
* Older Brother or Sister only							
* Other, specify _____ _____							
3. For my child, age _____, the activities were:							
* Too easy							
* About right							
* Too advanced							

4. Please add any comment you would like to make about the curriculum either as it was presented at the child care center or with the material that was brought home.

_____

_____

_____

Rate the **Nutri-Letter** series. Consider activities and nutrition information presented and circle your response.

1 = Great! As a result we're eating more nutritious foods.
2 = Good! We plan to include more nutritious foods in our diet.
3 = Fair! There has been no affect on our eating habits.
4 = Poor! Not enough information was provided to make changes in our eating patterns.
5 = Didn't read or use the **Nutri-Letter** series.

SIMULATED MEAL-TIME: AN EVALUATION TOOL

A method for evaluating the effectiveness of a nutrition education program is to evaluate the dietary intake of the participants for a 24-hour period. Another method explored in this project was to evaluate the nutritional qualities of the child's food selections in a *simulated meal-time* activity that was presented *cafeteria style*.

The activity was tested in selected participating child care centers before the curriculum was taught and following the completion of teaching the curriculum.

An objective for the activity is nutrition education, more nutritious foods will be chosen by preschoolers when a choice is given.

MATERIALS NEEDED

Food Model Pictures

Cake Doughnut	White Bread	Hamburger Roll
Beef Liver	Whole Wheat Bread	Spinach (greens)
Potato Chips	Cantaloupe	Cheese
Tea	Tomato Slices	Frankfurter Roll
Apple Juice	Chocolate Bar	Orange
Pineapple Juice	Corn	Hamburger Patty
Soft Drink	Raisins	Apple
Chocolate Milk	Gelatin	Frankfurter
Milk	Carrot Sticks	Sugar Cookie

- Eight or 9-inch dinner plate
- Pencil and Record Sheets
- Table or desk with three chairs
- One interviewer and one recorder works best

DIRECTIONS

- Set up in a quiet place so the child will not be distracted.
- Spread the pictures of the 25 foods out on the desk or table so that the child will have a chance to see all the foods.
- Decide who will act as the interviewer and who will be recorder. It works best if the recorder is seated behind the child.
- Invite the children to come *play* with you one-at-a-time.
- Introduce yourself and your helper. Explain that you want to play a new game with them.

  "_____, we're going to plan dinner tonight, and the foods you see here are what we have to choose from."

- Make sure the child is familiar with all the food pictures. Quiz them.

  "_____, before we can plan our meal, we have to know what all these foods are. Can you show me the (any food)? How about the (any food)? (Continue this format for several foods.) Can you tell me what this food is? (Pointing to a particular food—continue until most of the foods have been identified.) Are there any foods you don't know? Good job, _____, now we're ready to play."

  "I have a plate for you. (Give child plate.) Now, you can put the pictures of the foods that you want for dinner on your plate." (Pause for the child to respond, recorder checks the record sheet.)

  "Are those foods going to make you full?" (The child may respond with a nod, put foods back or select more.)

  "Now, let's see how much of these foods you will eat. This (food), will you eat all of it, half of it, a couple of bites, how many slices, etc?" (Choose the appropriate description emphasizing the meaning by covering one-half the food, counting, etc. Continue for all the foods the child has placed on the plate.)

  "You've done such a nice job, _____, now you can go back with your playmates." (Reward with non-food items, stickers, etc.)

- This same procedure is used to collect after results.

- Evaluate the food choices.

COMMENTS:

Foods which may be common to your region or ethnic background could be substituted if they meet the criteria established (meets 10% of the RDA for 3 to 5 year olds and same major nutrient).

The pictures may be limited in the *style* of preparation. Real food would be ideal to use but expensive. Plastic food models also could be an alternative if already available, but can be expensive to purchase.

RECORD SHEET FOR SIMULATED MEAL-TIME

NAME _____

AGE _____

Check the foods chosen and indicate amount to be consumed. Compare responses before and after presenting **Show-Me Healthy Habits**.

Please note that some foods are included in more than one nutrient category. A beverage food picture may have several beverages associated with it--soft drink, apple juice, pineapple juice, tea, etc. Write identification in the *other* response in the appropriate nutrient category.

		Date_____		Date_____	
NUTRIENT	FOOD - The higher the food appears in the list the more nutrient dense.	BEFORE	AMOUNT	AFTER	AMOUNT
VITAMIN A	Beef Liver (3 oz.)				
	Carrot Sticks (5 sticks)				
	Spinach (1/2 cup)				
	Cantaloupe (1/4 Med)				
	Tomato (3 slices)				
	Chocolate Milk (8 oz.)				
	Corn (1/2 cup)				
	Milk (8 oz.)				
	Other_____				
B VITAMINS*	Beef Liver (3 oz.)				
Thiamin	Milk (8 oz.)				
Riboflavin	Hamburger Roll (1 roll)				
Niacin	Frankfurter Roll (1 roll)				
**Exception to compare with White Bread	**Whole Wheat Bread (1 slice)				
	White Bread (1 slice)				
	Frankfurter (2 oz.)				
	Chocolate Milk (8 oz.)				
	Hamburger Patty (3 oz.)				
	Orange (1 med.)				
	Spinach (1/2 cup)				
	Other _____				

NUTRIENT	FOOD	BEFORE	AMOUNT	AFTER	AMOUNT
VITAMIN C	Orange (1 med.)				
	Spinach (1/2 cup)				
	Cantaloupe (1/4 med)				
	Beef Liver (3 oz.)				
	Tomato (3 slices)				
	Apple (1 med.)				
	Other _____				
CALCIUM	Milk (8 oz.)				
	Chocolate Milk (8 oz.)				
	Cheese (1 oz.)				
	Other _____				
IRON	Beef Liver (3 oz.)				
	Hamburger Patty (3 oz.)				
	Raisins (4 1/2 T.)				
	Spinach (1/2 cup)				
	Other _____				
PROTEIN	Hamburger (3 oz.)				
	Beef Liver (3 oz.)				
	Chocolate Milk (8 oz.)				
	Milk (8 oz.)				
	Cheese (1 oz.)				
	Frankfurter (2 oz.)				
	Frankfurter Roll (1 roll)				
	Hamburger Roll (1 roll)				
	Other _____				
OTHER FOODS	Cake Donut				
	Potato Chips				
	Soft Drink				
	Sugar Cookie				
	Chocolate Bar				
	Gelatin				

NUTRIENT SUMMARY

Number of foods selected in each category	BEFORE	AFTER	CHANGE (+ OR -)
VITAMIN A			
B-VITAMINS			
VITAMIN C			
CALCIUM			
IRON			
PROTEIN			
OTHER FOODS			

A "+" in a category indicates an improvement in the nutrient group in relationship to foods actually selected by the child. If the before and after choices are equal in number, look at the nutrient density or where the particular foods appear on the list. The child may be choosing more nutrient dense foods.

FOLLOW-UP DIETARY RECALL

Knowing the foods your child eats in a day's time helps us to evaluate the effectiveness of the **Show-Me Healthy Habits** series. Please be as complete and specific as possible in completing this section of the questionnaire.

Directions:

1. List the foods eaten in the specific section.
2. Be as complete as possible when describing the food.
   - Kind (be descriptive) For Example: White or brown bread
     Whole milk or skim milk
     Mashed potatoes or boiled potatoes
   - Method of preparation—For Example: Fried, boiled, buttered, with cheese sauce, sugared, etc.
   - How much—Using measurements for example: Ounces, cups, tablespoons, inches, slices, sections, etc.
3. Where was the food eaten? H--Home; R--Restaurant; CCC--Child Care Center; S--School

   Record amount eaten, not amount served. It is not necessary that you provide the foods eaten at the child care center. Those menus can be added. Indicate eating time at the child care center.
4. Is a nutrition supplement taken? _____ Yes _____ No
   - If yes, kind(vitamin, mineral, multi-supplement, etc.) _____

Serving Size (dosage) _____ How often _____

Food	Amount	Place Eaten
BREAKFAST		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
MORNING SNACK		
_____	_____	_____
_____	_____	_____
_____	_____	_____

Food	Amount	Place Eaten
LUNCH		
AFTERNOON SNACK		
SUPPER		
EVENING SNACK		

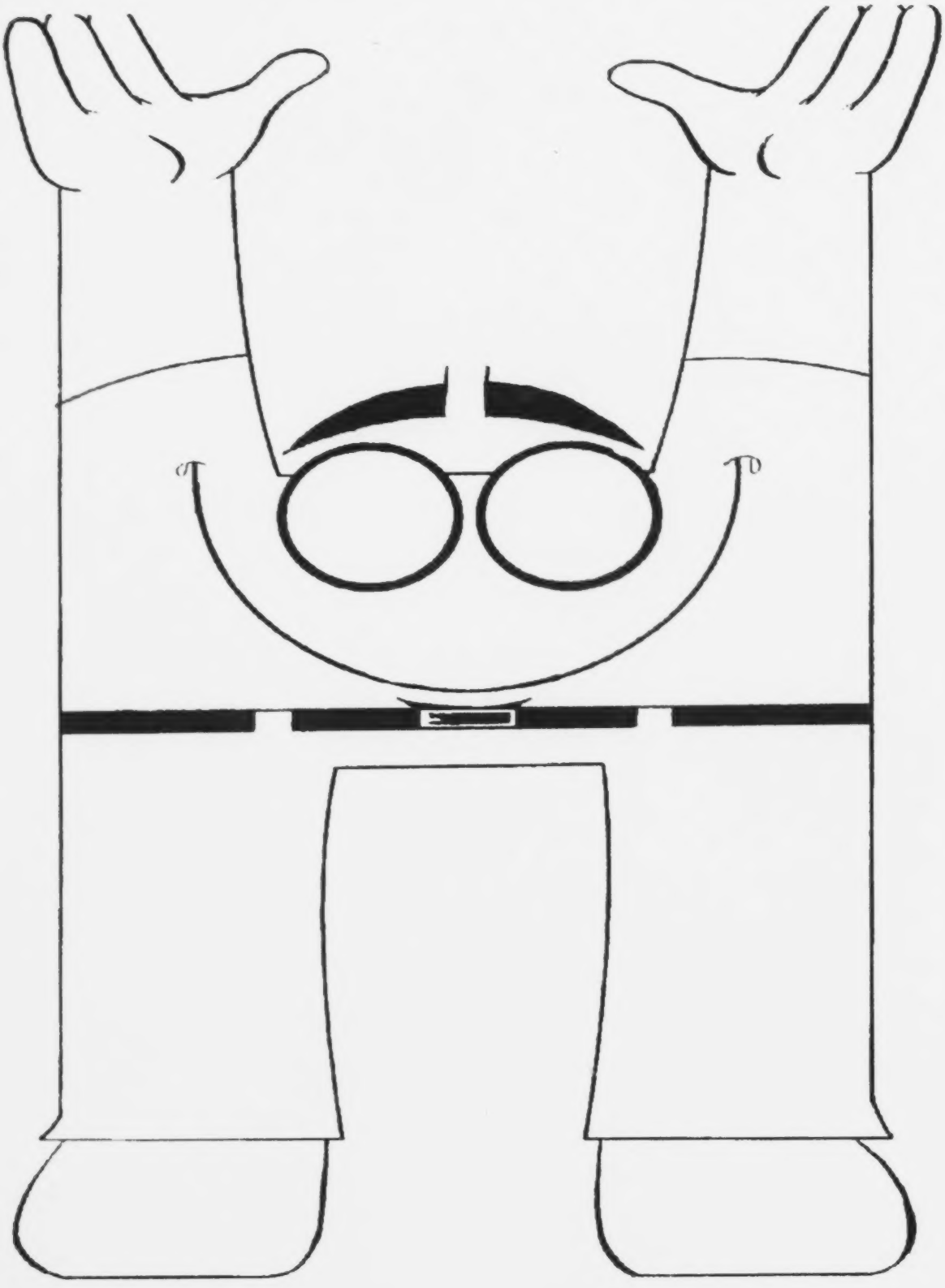
5. List foods served in your family meals that represent the following nutrients.

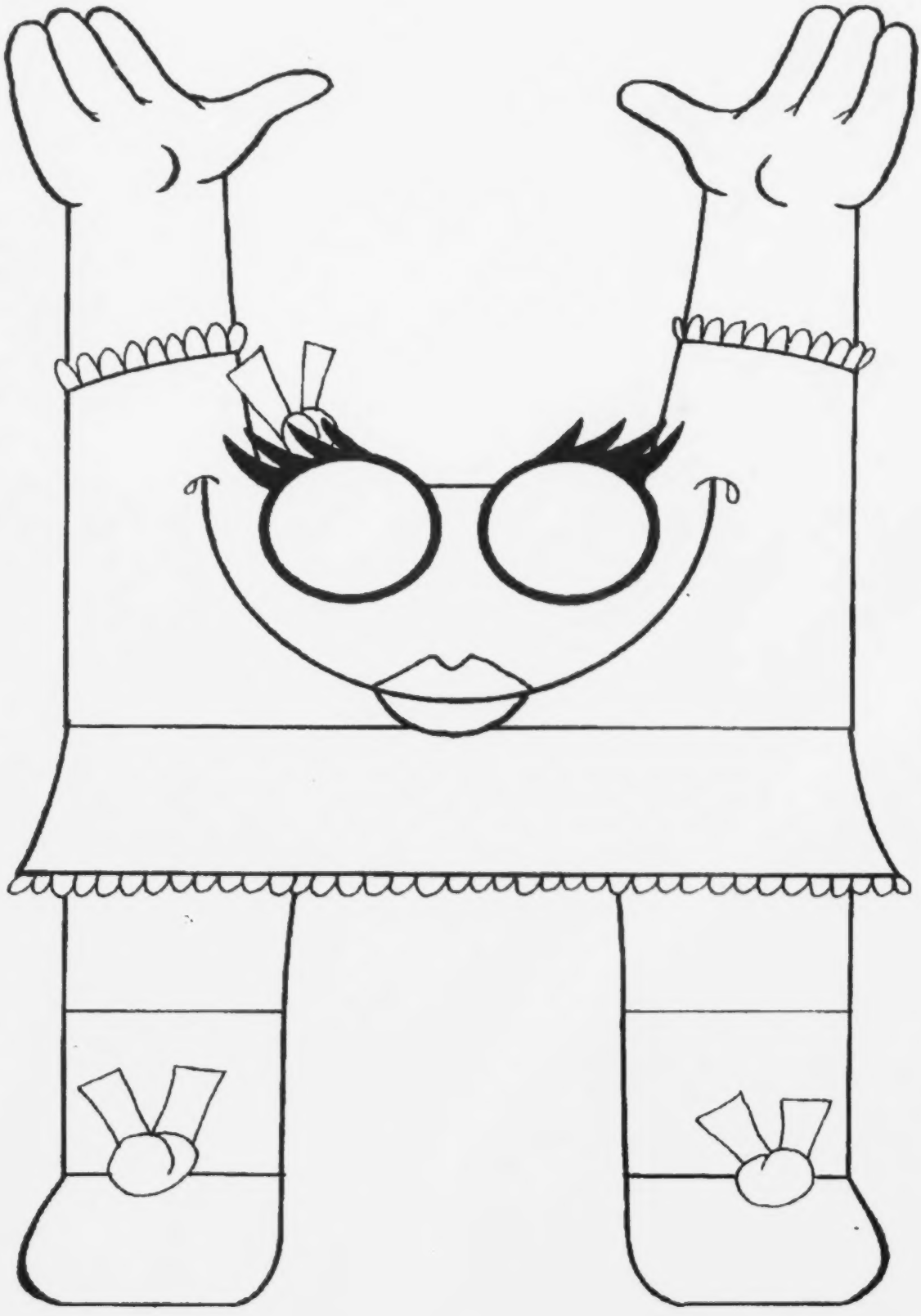
Vitamin A	Vitamin C	B-Vitamins
Protein	Iron	Calcium

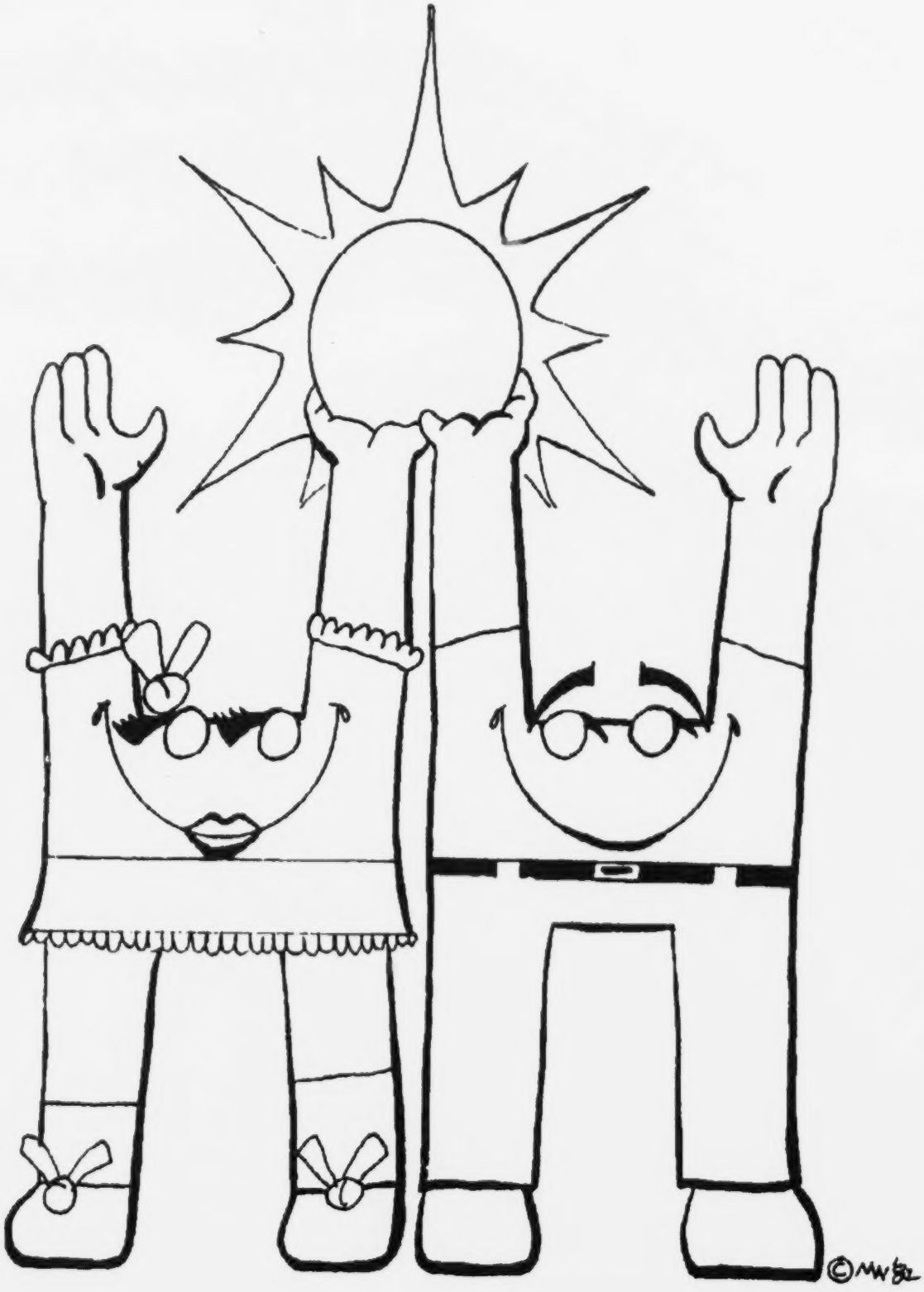
6. List snacks served at home beside those listed above.

Parent's Name _____

Child's Name _____ Child's Birth Date _____







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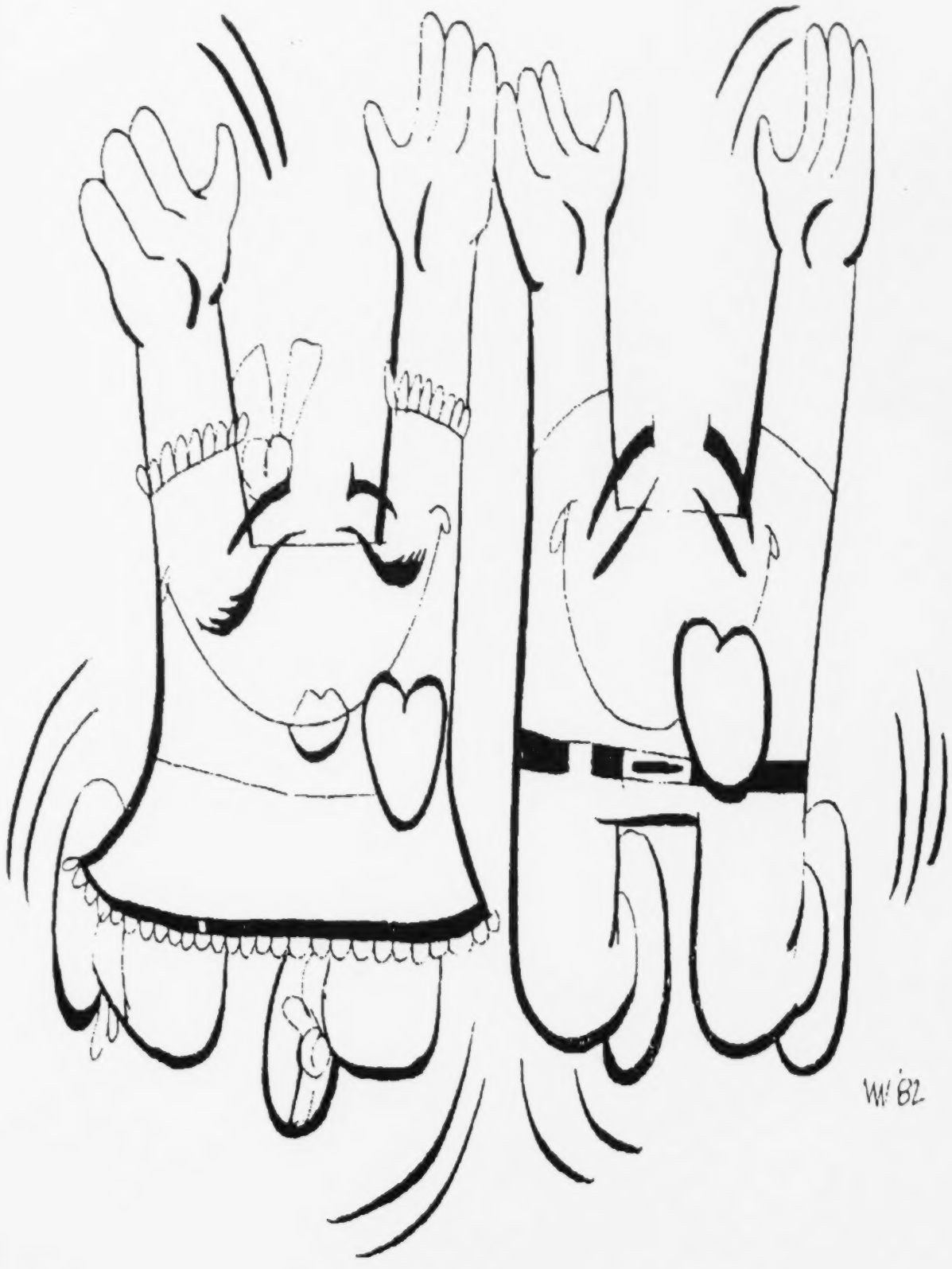

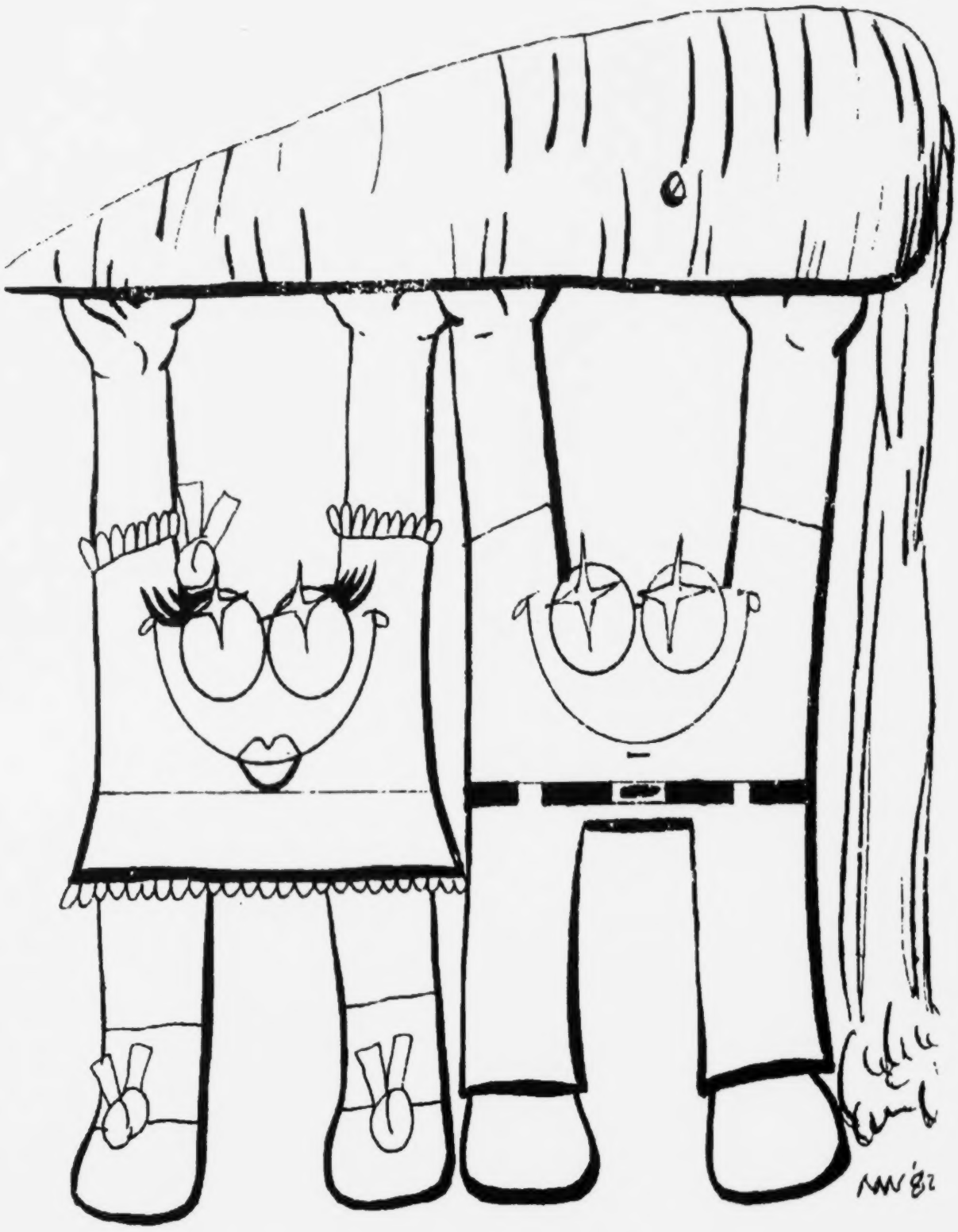

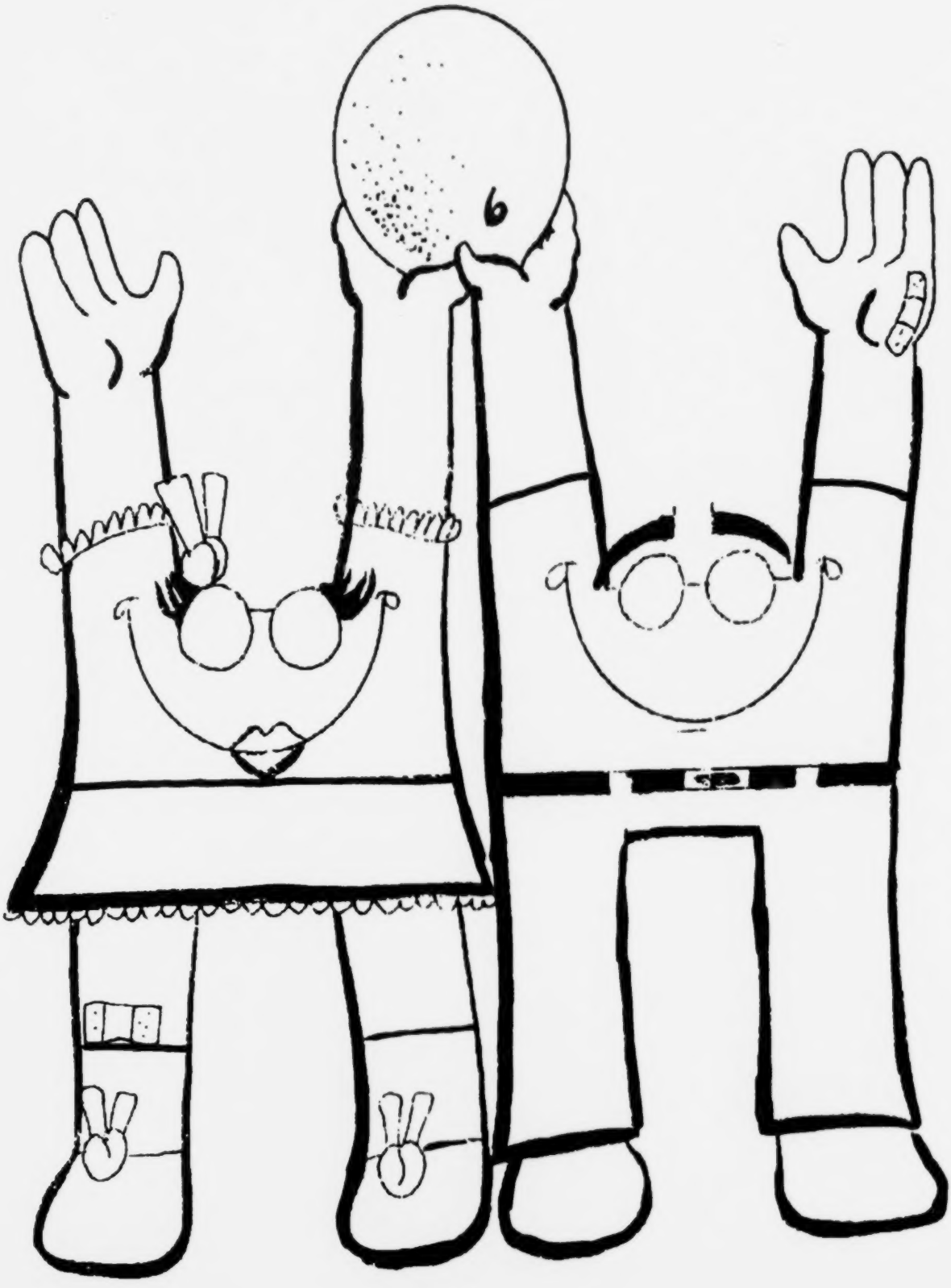

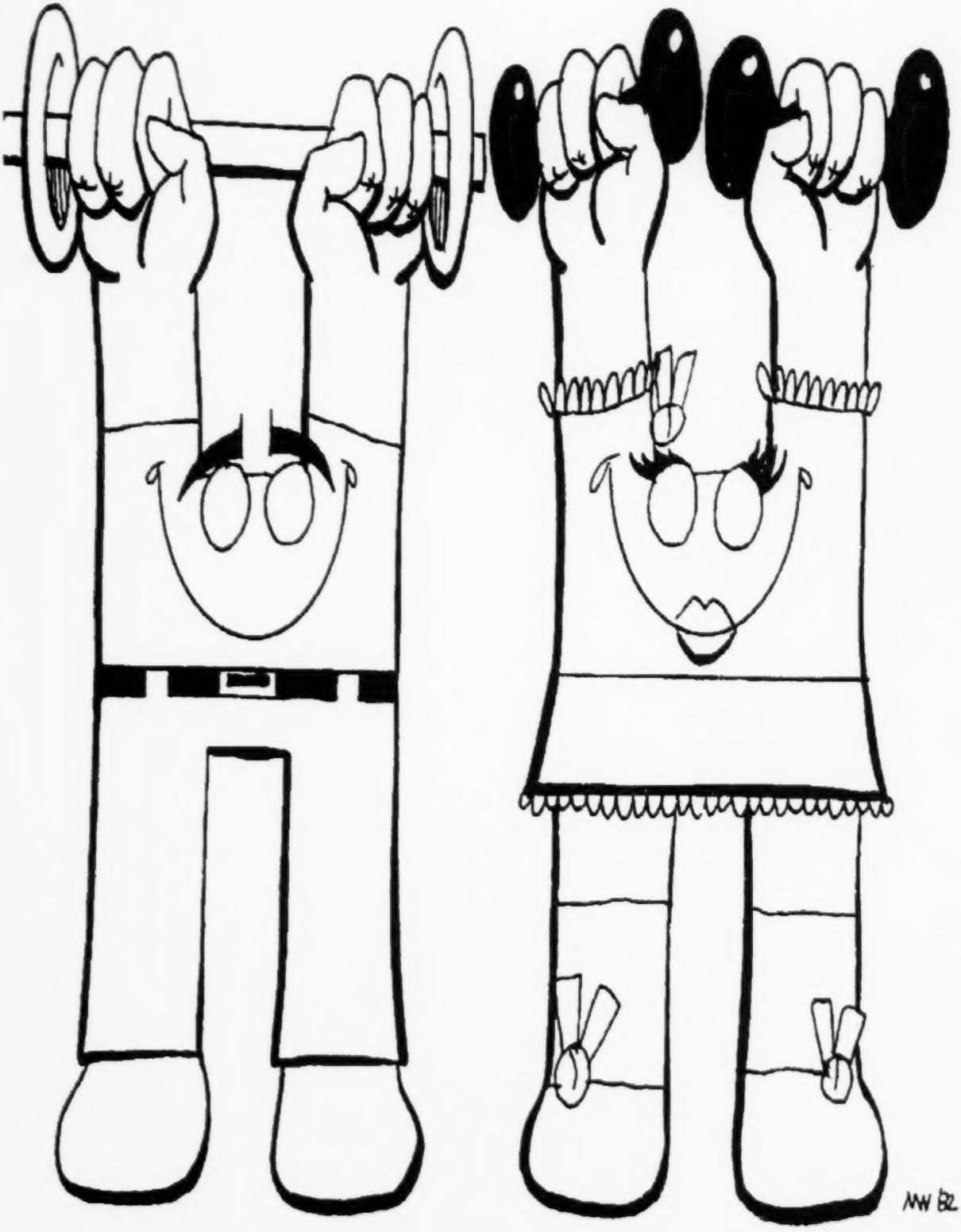

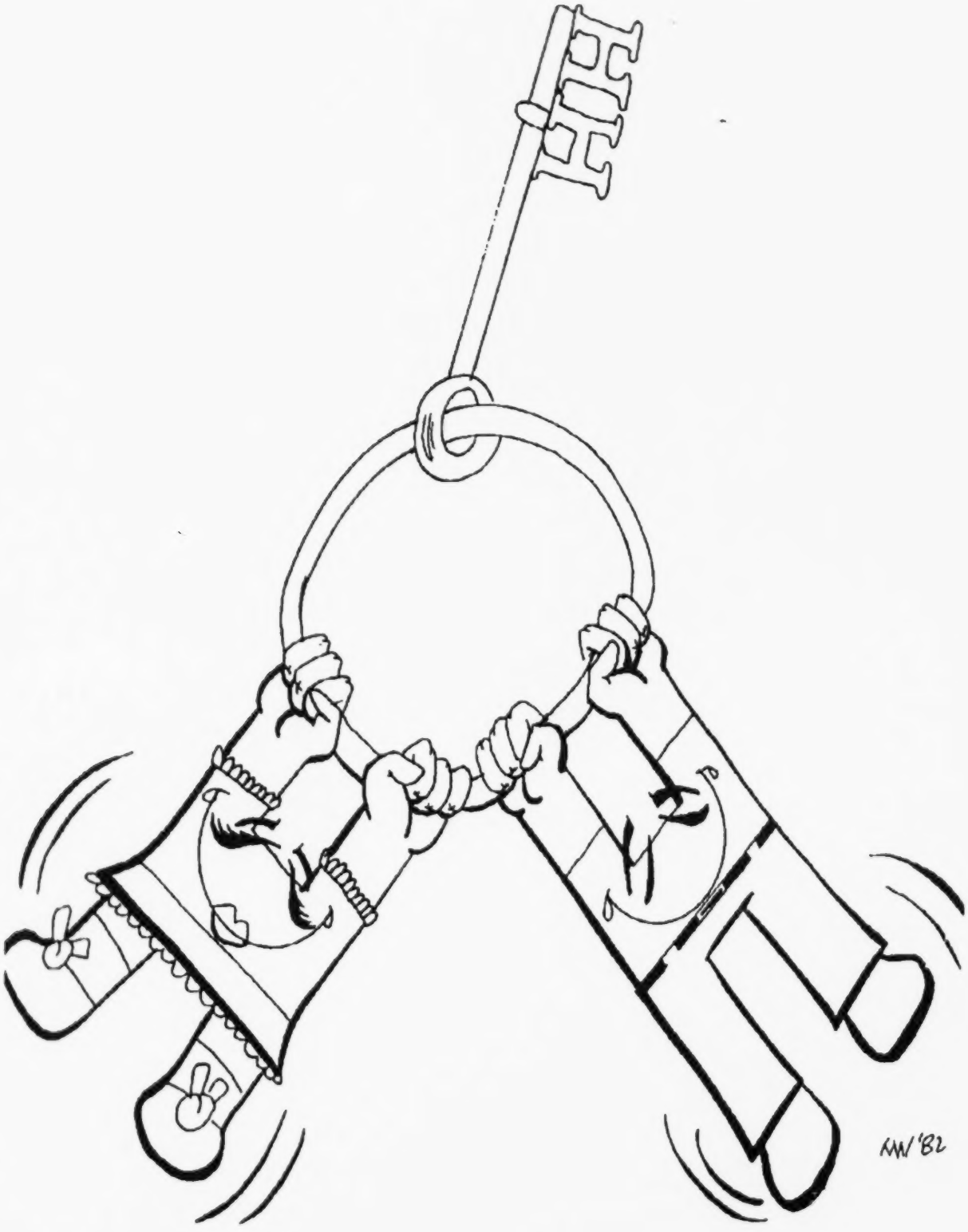
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For more information or to order **Show-Me Healthy Habits** please write to the following:

University Extension
Food and Nutrition
301 Gwynn
Columbia, MO 65211
(314) 882-2435

Name_____Occupation_____

Address_____

City_____State_____Zip_____

Please indicate your intended audience for this curriculum._____

_____

Cost: One book.....$ 6.50*
Three books..$15.00* *Includes shipping and handling.

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For more information or to order **Show-Me Healthy Habits** please write to the following:

Nutrition Education and Training Program
Missouri Department of Health
P.O. Box 570
Jefferson City, MO 65102
(314) 751-6183

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